In This Issue—*Many New Automotive Devices*

MOTOR AGE

Vol. LI
Number 3

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CHICAGO, JANUARY 20, 1927

Thirty-five Cents a Copy
Three Dollars a Year

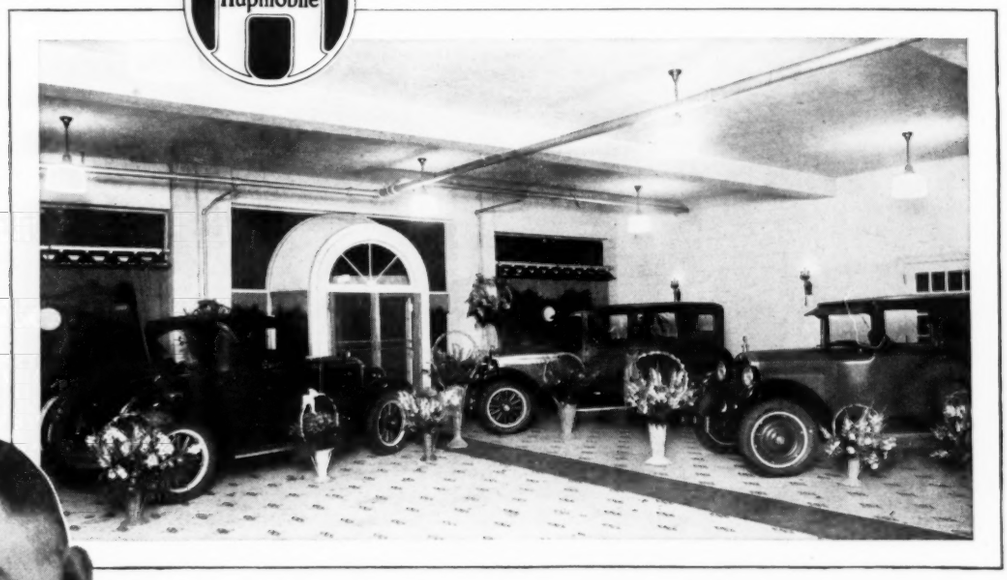
The demand for the Little Custom Jordan reveals the fact that the world has long been waiting for the manufacturer with nerve enough to put real quality into a small car.

Edward S. Jordan

President
Jordan Motor Car Company, Inc.
Cleveland

Entered as second-class matter Sept. 19, 1899, at the post office at Chicago, Ill., under the Act of March 3, 1879.

HUPMOBILE DEALERS MAKE MONEY



Hupmobile Profits Built His $75,000 Establishment

When George Szabo took over the Hupmobile contract for East Chicago in 1919, he found just seven Hupmobiles operating in his territory.

Today in East Chicago, Hammond and Whiting, Szabo Motor Sales has placed more than 600 Hupmobiles. Out of the profits Mr. Szabo has built his present fine establishment. Last year his net profit was $21,000.

The success of Mr. Szabo in a territory, largely industrial, is being duplicated by Hupmobile dealers in every section of America. Details of the Hupmobile contract, known as the most liberal in the industry, will be sent to interested dealers on request.

"The factory's policy and your close cooperation have been a great help in establishing a business and clientele of which I am very proud. If I were to lose the Hupmobile contract I would go out of the automobile business."

Letter of Mr. Szabo to Chicago Distributor.

* * *

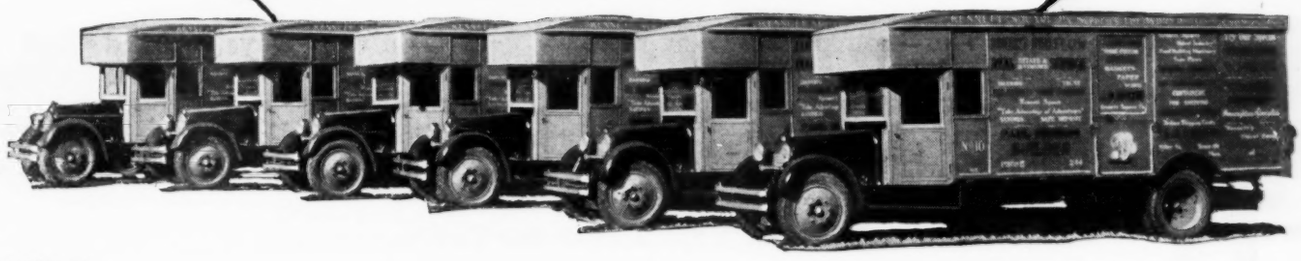
25% of all Hupmobile Dealers Have Sold Hupmobiles for Periods Ranging from Twelve down to Four Years.

Any dealer interested in the progress of Hupmobile dealers in his own vicinity, may secure information similar to the above by writing the Hupp Motor Car Corporation.

HUPP MOTOR CAR CORPORATION
DETROIT, MICHIGAN

HUPMOBILE
EIGHTS & SIXES

Saving 3½ trucking hours out of every ten . . . with BUDD-MICHELIN DUAL WHEELS!



WE asked C. C. McIlvain of the Mushroom Transportation Company, Kennett Square, Pa., just how Budd-Michelin Dual Wheels affected his profit column. Here's what he said:

Speed! "We haul, annually, thousands of tons of mushrooms to the New York markets, a distance of 125 miles. Before putting our trucks on Budd Duals it used to take 10 hours to make the trip. With Budd Duals we can make the trip in 6½ hours.

Longer truck life!

"Our trucks on Budd Duals have been going for four years —and are still going. We get longer service from our trucks on Budd Duals because there is less wear and tear from road shocks.

Tire Mileage

"Our loads average four tons, yet we run 15,000 miles and over on a set of pneumatics.

More work from drivers

"One driver can make six trips a week with Budd Duals, without fatigue. Where before, three trips a week was about all he could stand.

Lower maintenance cost!

"Our repair and maintenance costs are but a fraction of what they formerly were."

This is plucked right out of day-in and day-out experience. It is a concrete example of what Budd-Michelin Dual Wheels—*and only Budd-Michelin Wheels*—will do for any truck owner. No wonder the country is swinging to Budd-Michelin Dual Wheels. No wonder 130 bus, truck, and trailer manufacturers offer them as standard or as optional equipment on every job they put out!

BUDD
WHEEL COMPANY
Detroit

Dealers:

This is the kind of transportation that means more business for you—the kind that any truck will give on Duals. Your manufacturer will deliver any job Dual equipped—talk it over with him!

The New HOLMES CANTILEVER JACK

Improved · Simplified · Strengthened

You can lower it with one hand.

The new Holmes Cantilever Jack embodies a new mechanical feature that makes the lowering just as simple as the raising. You simply pump handle up and down to raise jack—pull out reverse button and pump up and down to lower. No load on handle when lowering, therefore no tendency of handle to fly back. The maximum load (5000 lbs.) can easily be lowered with one hand.

It starts at 6 inches, raises to 17 inches, lifting car full 8 inches, permitting a complete change of tires (Balloon or high pressure) at one operation. It is extremely easy to operate, even in cramped quarters, under running board or jammed against the wall for the stroke of the operating lever is not limited to any definite position. A full or partial stroke may be taken at will.

You've always wanted such a Jack. Now here it is. See it—Operate it—Try it side by side, load for load with any other and the contrast will emphasize its superiority.

Ask Your Jobber for Demonstration.

ERNEST HOLMES COMPANY

CHATTANOOGA TENNESSEE

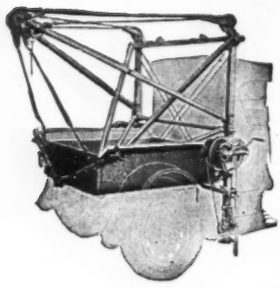
IT TAKES A HOLMES TO DO IT

To lower jack pull out this button and pump handle—that is all there is to it—stroke is not limited to definite positions of handle—you simply pump it up and pump it down.

PRICE
$38.00
With Four Wheels Rubber Tired
$50.00

THE BIG PROFITS COME FROM WRECKS

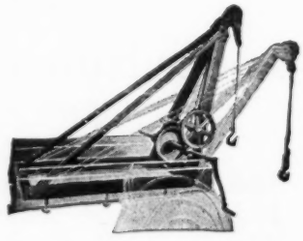
Holmes Wrecker No. 485



Built for those who want the best in wrecking equipment. Double Derricks, Automatic Extension Legs, Two Speed Hoisting Mechanism. Two 100 foot Service Lines, Four Ton Capacity and One Man Operation are a few of the outstanding reasons why the Holmes No. 485 is practically the unanimous choice of the men who have had the most extensive wrecking experience. It is an effective advertising medium, a builder of prestige and good will, and brings in big profits in tow fees and repair jobs.

Ask your Jobber or write for full information.

Holmes Wrecker No. 110



The most practical, powerful and economical crane type wrecker ever developed. It mounts quickly on any touring car or light truck chassis and is operated entirely from the ground. Its great leverage and four ton capacity permit it to handle the heaviest cars speedily and efficiently. The patented swivel head permits a pull from any angle and eliminates blocking traffic. It is an efficient advertising medium, a great business getter and its speed and economy enables you to meet the keenest competition.

Ask your Jobber or write for full information.

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VOL. LI NO. 3

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Don't file shims—use Laminum and cut your labor and time costs.

Laminum peels. Shims are made quickly, easily and with little effort.

The adjustment is better and closer and the surface is smooth as glass. Keep a stock of Laminated Shims in your shop and save time, money and labor.

Sold by all jobbers. There is a shim for every make of car.

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K. O. That January Slump

Make more money this month than ever before. You can do it with Genuine APEX Innerings.

Get a line on piston slappers and oil pumpers. Sell APEX installations NOW while owners can spare their cars.

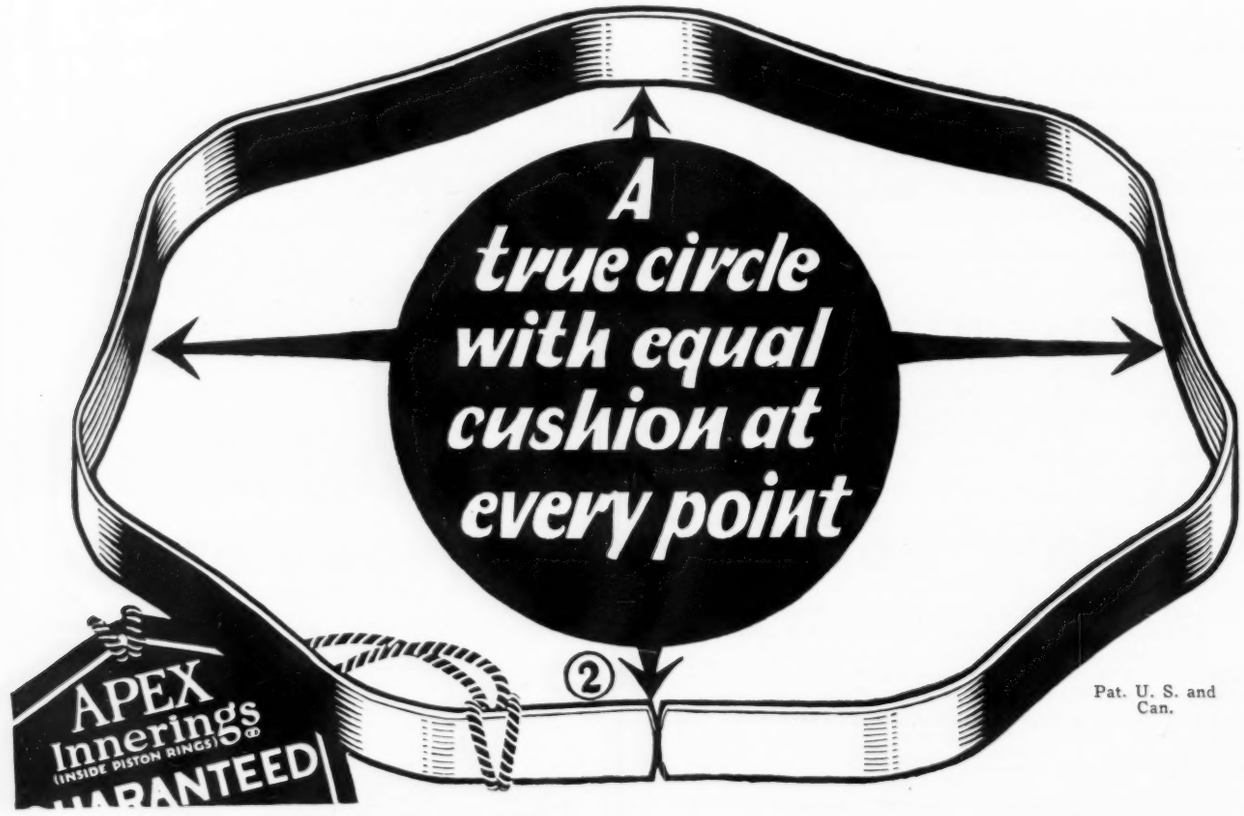
You can get from $12 to $20 for APEX installations and knock out two a day with one man.

Figure up the profits. Compare the ease of selling APEX installations against expensive re-grinding jobs and you can easily see your way clear to the best January you ever had.

Others are doing it. Many have not only kept their Summer force but added to it during Winter whipping motors into shape for Spring use at big profits.

Write us. We'll tell you how to do it.

THOMSON MFG. COMPANY, Department 21, PEORIA, ILL.



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New York speaks the same Language as Paris

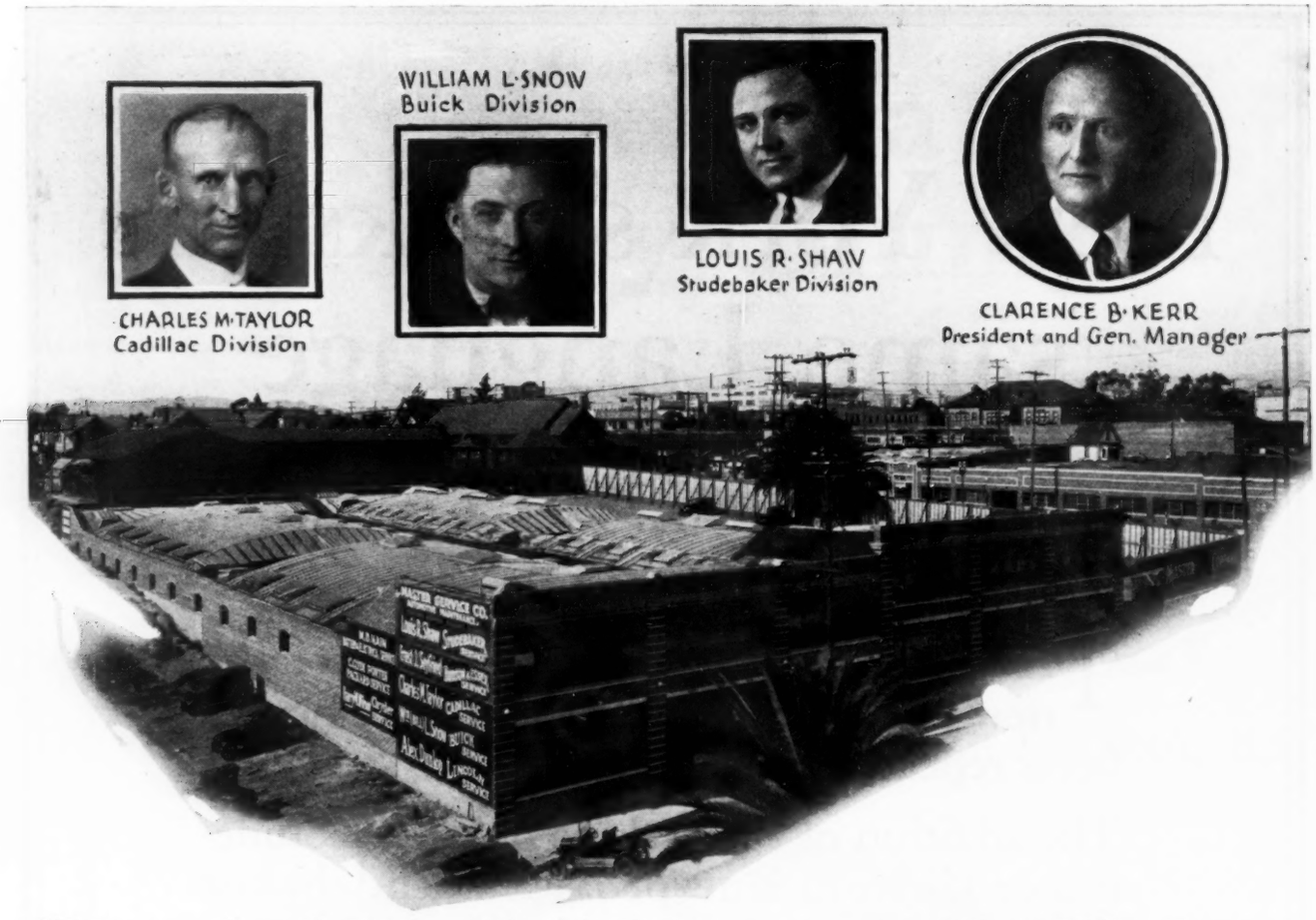
THE enthusiastic reception accorded the new Erskine Six in Paris and London has been repeated in New York.

The addition of the Erskine Six to the Studebaker Custom line provides Studebaker dealers with models ranging from $935 to $2245—supreme values in the modern, fine-car field.

Between August and January, 1142 inquiries were received regarding the Studebaker franchise—500 new dealers were appointed!

It is possible the Studebaker-Erskine sales-rights may be open in your territory. Wire or write today. Address Department 51, The Studebaker Corporation of America, South Bend, Indiana.

STUDEBAKER



"Have had Wonderful Success with Gill Interlocking Joint Piston Rings —and in all our departments the Economy Oil Ring has been satisfactory."

MASTER SERVICE COMPANY

(Signed) C. B. Kerr
President and General Manager.

Los Angeles . . . City of car owners.

Here the Master Service Company services seven leading cars under one roof. Each car has its own division managed by an expert on that car.

Master Service Company do a volume business . . . . A volume built by constantly giving 100% satisfaction.

For which part of the credit is given, in a recent letter from C. B. Kerr, president and general manager, to Gill Interlocking Joint Piston Rings and the Economy Oil Ring, the favorites of every division.

GILL MANUFACTURING COMPANY
8300 S. Chicago Ave. Chicago, Ill.

Free

The Gillometer

Gives the flat rate charge on six popular engine repair jobs covering 75 makes and models of cars. Tells piston ring size required. Wipes out estimating losses. Sent free—regardless of what rings you use. Write for yours today.

Gill

Products

Gill Interlocking Joint Rings, Servus (Step-Cup) Rings, Economy Oil Rings, Piston Pins, Pistons.

English Trolley Buses . . . German Street Cars . . . European Acceptance

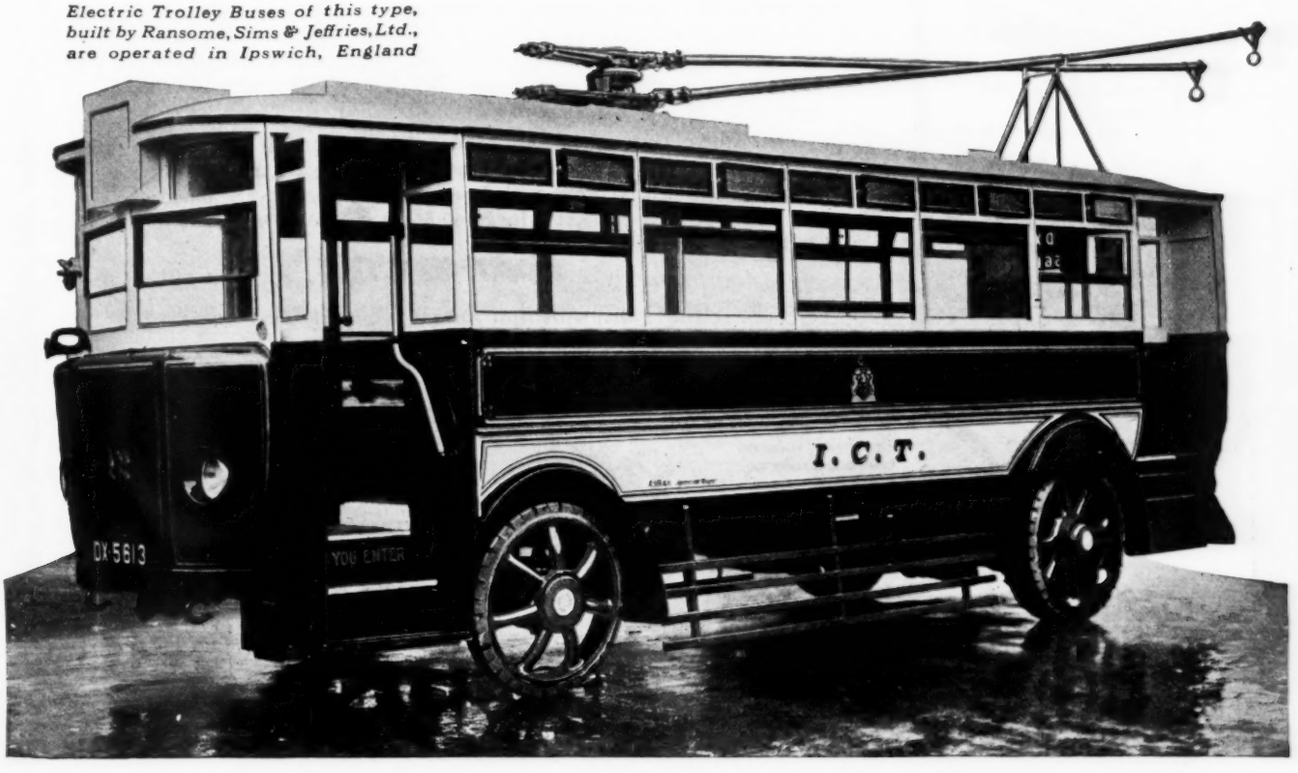
English trolley buses, German street cars, Austrian trucks—electric, steam and gasoline conveyances of all types and many makes, throughout Europe, are equipped with Timken Tapered Roller Bearings. To supply Europe there are Timken manufacturing plants both in England and in France.

Broad foreign recognition, in addition to the overwhelming preference for Timken Bearings here, surely implies complete engineering acceptance. Everywhere, for every transportation purpose on streets, rails or highways, Timken Tapered Roller Bearings are known as a positive means of improving performance and reducing operating costs.

Timken Tapered Roller Bearings are equally valuable resisting the shock and thrust of steel wheels on steel curves, or providing the surety, smoothness and quiet which attract passengers. With endurance multiplied and friction vanquished Timken-equipped transportation units cost less per passenger car mile.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

Electric Trolley Buses of this type, built by Ransome, Sims & Jeffries, Ltd., are operated in Ipswich, England



NORTHEASTER

A Real Magnetic Horn

Standard $ 7.50
Commodore
All Brass 11.50

Special $12.50
Admiral
All Brass 18.50

Sergeant $ 7.50

When the Doctor must get through

SWIRLING snow—slippery pavements—traffic-choked streets—crowds pressing at cross-walks—**B-E-E-E-P**—**B-E-E-E-P**—heads up!—the Doctor is answering a hurry call—somebody's life hanging in the balance—every second counts—**B-E-E-E-P**—**B-E-E-E-P**—the way is cleared—on he goes with pace unslackened.

No one knows better than the Doctor what it means to have to get somewhere quick. His friends and our advertising are making him realize how much he needs a NORTHEASTER. Remind every Doctor that you have a NORTHEASTER for him. ***Make it "NORTHEASTERS for Doctors" this month.***

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The Horn with that Smart Vibrant Tone
The Horn with the Quick Response
The Horn That Lasts
The Horn They Want

NORTHEASTER Horns are made by the
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Volume LI MOTOR AGE Number 3

CHICAGO, JANUARY 20, 1927

On To Chicago!

Mid-Western Metropolis Setting Stage for National Automobile Show

THE unqualified success and brilliancy of the New York Automobile Show bears splendid augury for a magnificent and highly successful national show in Chicago January 29-February 5. This is a logical expectation, for the only great difference between these two exhibitions is one of changed setting—both being sponsored by the National Automobile Chamber of Commerce, with the cooperation of the Motor and Accessory Manufacturers Association, and both operating under the direct supervision of the master craftsman in show management, S. A. Miles.

S. A. Miles, Manager New York and Chicago Automobile Shows

Tradesmen went to the New York Show, among other things, for a treat of new model introductions. They will come to Chicago, many of them, for that same purpose and for more matured opinion among their members regarding new offerings in cars and car design, for inspection of many items in equipments and accessories that were not displayed in New York, and to benefit in various manners.

As in New York one new feature of the Chicago show will be a shop equipment section displaying numbers of working models. An enthusiastic echo from New York presages a fine reception at Chicago's Coliseum of this department. Jobbers have rendered excellent cooperation in spreading word among shopmen that this section of the show will be dedicated almost entirely to them. And so it will be, as throughout the term of the show the shop equipment section will be open to the trade exclusively from 10 A. M. to 3 P. M. each day.

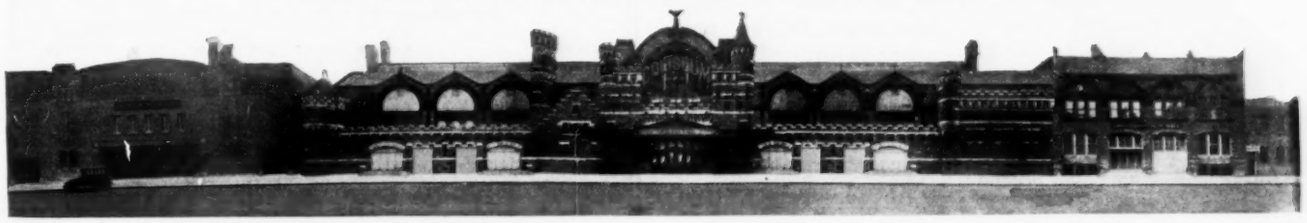
As in New York, Chicago's show will have for its first time a section of commercial cars. The trade has voiced its appreciation of this feature in many ways and the commercial car division promises to be a center of real interest.

Alfred Reeves, General Manager National Automobile Chamber of Commerce

Chicago's national show long has been known as a great merchandising show and every merchandising element will be present this time. On the floor of the Coliseum many of this locality's most successful salesmen will be in action, numbers of them veterans in show sales strategy, all schooled especially for this particular effort and given a final grooming at the Chicago Automobile Trade Association's annual pre-show banquet and "pep" meeting which takes place on the evening of January 27 at Congress Hotel. Merchandising will be the central thought at the N. A. D. A. convention and many other meetings.

It is going to be a great show from the standpoint of public interest. There are many signs to hold out this promise. Reports of the New York show only sharpened the eagerness of the Mid-West for a view of the season's new automotive offerings, one thing the big eastern exhibit always does. The national automobile show in New York has become a page of brilliant history and now it is: "On to Chicago." In fact, as this edition of MOTOR AGE comes from the press active preparations for Chicago's show are under way.

View of Coliseum, where Chicago's National Automobile Show will be held



Review *of* 1926 Road

Constantini Heads List in European Road Racing for 1926, *After Nip and Tuck Struggle with Jules Goux, Veteran French Driver, Who Finishes Second*

By VAL HARESNAPE

Constantini, Young Italian driver, 1926 Champion

IT was not until the last road race of the season that the name of any driver stood out undeniably as champion, as had the name of Bugatti among the car marques as early as September 5. At the beginning of the year it was generally predicted that the major events were much at the mercy of three makes of cars, Bugatti, Delage and Talbot. There were the usual predictions of new cars laid out on the drawing board including the famous names of Fiat, Alfa Romeo and Sima-Violet, but long before the season opened these manufacturers declared their intention of refraining from competition until 1927.

Bugatti obtained an immediate lead due to a happier preparation. Their cars were ideally suited to the difficult Targo Florio course whereas the Delage 146 cubic inch cars were too long in wheelbase to negotiate the course at the real turn of speed of which their engine equipment was capable.

When the 91½ cubic inch cars came in at Miramas, Delage was not ready and in the two races separated by a week at San Sebastian, Spain, in July, intensely hot weather was encountered which emphasized an unfortunate handicap inherent in the cars. The 91½ inch Delages were regarded as having the advantage in speed over anything that Europe had to offer. The team was well fortified with drivers including Wagner, Benoist, Dubonnet and others. The cars were well fitted for road racing in wheel base and balance and possessed powerful brakes.

But they lacked that all-important essential in road racing, driver comfort. The Delage drivers in both of these races wilted under the fierce conditions imposed by the car's lack of comfort. In the European Grand Prix Morel was carried to the hospital suffering from heat stroke and burned feet while leading the race. Louis Wagner relieved him. Benoist could not continue for the same reason and he was relieved by Senechal. It seemed that the Delage engineers in order to reduce head resistance to the minimum had seated the driver too low and had overshot the mark.

Jules Goux, Who Takes Second Place

As for Talbot, delay was suffered by a strike at the factory and earlier trials and road tests failed to satisfy the factory engineers and though entered in all events of the year, the factory resolutely refused to send them into the list until they felt confident of their preparation. Their inaugural was delayed until August 7 at the British Grand Prix.

It is fair to say that the conditions as to car competition were, accordingly unusual but readiness for combat is one of the first requisites of a champion and Bugatti richly deserves the honor of the champion car of Europe for 1926 as their preparation was punctual and thorough and their clean sweep over two-thirds of the season's racing almost complete.

Summary of Drivers Performances

Drivers	1st	2nd	3rd	4th	5th	Total Points
Constantini	3	2	1	....	....	46
Goux	2	2	1	....	....	36
Seagrave	1	1	....	....	....	16
Senechal	1	1	....	....	....	16
Divo	1	1	....	....	....	16
Charavel	1	....	....	....	....	10
Minoia	....	1	....	1	....	9
Campbell	....	1	....	....	....	6
Wagner	....	....	1	....	....	4
Benoist	....	....	1	....	....	4
Purdy	....	....	1	....	....	4
Farinotti	....	....	1	....	....	4
Moriceau	....	....	1	....	....	4
Materassi	....	....	....	1	....	3
Chinon	....	....	....	1	....	3
Dubonnet	....	....	....	....	1	2
Brilli Perri	....	....	....	....	1	2
Guyot	....	....	....	....	1	2

Summary of Car Performances

Cars	1st	2nd	3rd	4th	5th	Total Points
Bugatti	6	6	4	2	2	122
Talbot	2	2	1	....	....	36
Delage	1	1	2	1	....	27
Itala	....	....	....	1	1	5
Guyot Spl.	....	....	....	1	....	3

Point Method Used—First, 10; Second, 6; Third, 4; Fourth, 3; Fifth, 2.

Racing *in* Europe

A tabulation of cars in the principal races over the season gives Bugatti 6 first places, 6 second places, 4 thirds, 2 fourths and 1 fifth. Talbot is credited with 2 first, 2 seconds and 1 third. Delage stands third in the list with 1 first, 2 thirds and 1 fourth.

No attempt is made in this review to cover the many track events held at both Brooklands and Mountlhery, for all of the strictly track events this year consisted of programs of short sprint races. Nor has recognition been given in this study to several 24-hour endurance runs for stock cars although many of the most famous driving names of Europe appeared among the entries.

All major events were run on courses that were a combination of road and speedway or under simulated road conditions as at Brooklands whereby the placing of sand banks and other obstructions road racing conditions were approximated.

European Road Racing Record of 1926
(91½ Inch Class)

Race	Date	Car	Driver	No. Starters	No. Finishers	Distance Miles	Time	M.P.H.
Targo Florio Cup (Sicily)	April 25	Bugatti	Constantini	18	12	335½	7:20.45	45.6
	Second	Bugatti	Minoia	Each lap			7:30.49	
	Third	Bugatti	Goux	67 Miles			7:35.56	
	Fourth	Itala	Materassi				7:44.26	
	Fifth	Bugatti	Dubonnet				7:45.00	
Also finished—Peugot, Wagner—O. M., Balestrero—Steyr, Candrillo—Maserati, Maserati—Bugatti, Croce—Bugatti, Caliri—Bugatti, Montanari—Count Masetti overturned with Delage and died later.								
Grand Prix of France (Mirimas)	June 27	Bugatti	Goux	3	2	310½	4:38.43	68
	Second	Bugatti	Constantini					
European Grand Prix (San Sabastian)	July 18	Bugatti	Goux	6	6*	484	6:51.52	70.5
	Second	Delage	Senechal	Each lap			6:59.42	
	Third	Bugatti	Constantini	10.6 Miles			7:28.17	
*Delage—Moul and Benoist flagged fourth—Bugatti; Minoia flagged fifth—Delage; Wagner sixth.								
Spanish Grand Prix (San Sabastian)	July 25	Bugatti	Constantini	10	4	374½	5:35.47	76.8
	Second	Bugatti	Goux	Each lap			5:52.16	
	Third	Delage	Wagner & Benoist	10.6 Miles			5:56.57	
	Fourth	Bugatti	Minoia					
British Grand Prix (Brooklands)	August 7	Delage	Senechal & Wagner	9	3	287	4:00.56	71.61
	Second	Bugatti	Campbell	Each lap			4:10.44	68.82
	Third	Delage	Benoist & Dubonnet	2.6 Miles			4:18.8	68.12
Italian Grand Prix (Monza)	Sept. 5	Bugatti	Charavel	6	2	372	4:20.29	85.87
	Second	Bugatti	Constantini				4:21.1	83.77
Milan Grand Prix (Monza)	Sept. 12	Bugatti	Constantini	12	10	248½	2:36.18	95.4
	Second	Bugatti	Goux	Each lap			2:47.19	
	Third	Bugatti	Farinotti	6.2 Miles			2:56.51	
	Fourth	Bugatti	Varnon				2:58.39	
	Fifth	Itala	Brilli Perri				2:59.17	
Also finished:—Bugatti—Stephanemmi—Chiribiri, Serboli—BNC—DeJoncy—Salmson, Clerici.								
England's 200 Mile Race (Brooklands)	Sept. 25	Talbot	Seagrave	6	6	200	2:40.22.2	75.56
	Second	Talbot	Divo	Each lap				
	Third	Bugatti	Purdy	2¾ Miles				
Also finished:—Bugatti, Douglas—Thomas, Thomas—Halford, Halford—Talbot, Moriceau.								
Montlhery	October 17	Talbot	Divo	9	7	250	1:50.01	62.6
	Second	Talbot	Seagrave	Each lap			1:50.06	
	Fourth	Talbot	Moriceau	15.6 Miles			2:09.59	
		Guyot	Cuvot					
Also finished:—Three Jean Graf cars.								

The six leading races of the year on the Continent were limited to 91½ cubic inch cars as a maximum but two of the important events were not so limited, and since they included in their nominations the leading drivers and car makers, consideration was equally given in casting up the credit.

While Constantini and Goux were placed well up in front due to the consistency of their cars coupled with able driving, it was nip and tuck between them until the end of the season.

The brilliant young Italian, however, is entitled to the call, having won one more race than the veteran Goux whose name appeared on major programs as far back as 1909 and who was the winner of our own Indianapolis race in 1913.

Three others are entitled to honorable mention and are practically tied in the effectiveness of their performances. Major H. O. D. Segrave admitted to be the best competitive English driver, was without doubt handicapped in his showing due to the difficulty in getting the Talbot cars in shape for competition as previously recited. And in the two races open to all cars which he entered, the Spanish Grand Prix and the Grand Prix of Milan at Monza, while he had the fastest car on the tracks in the four liter 12 cylinder Sunbeam, he was retired in both instances due to mechanical trouble in the car. In his first start in the 91½ inchers in the British Grand Prix of August 7, he led with his Talbot in the earlier part of the race but retired due to ineffective brakes and ignition troubles. Divo, his team mate, gathered no points until the Talbot performance was finally mastered and then brilliantly placed second in England's 200 mile event and won in the closing event of the season at Montlhery.

But it perhaps was in Senechal that the sport has produced one of its most colorful characters. This young man had been well known as an amateur driver, a car manufacturer and the president of the Motorcycle Club of France. He was seated in the grandstands watching the European Grand Prix at San Sebastian. Benoist drove up to the pit in his Delage, and dropped helpless against the replenishment station.

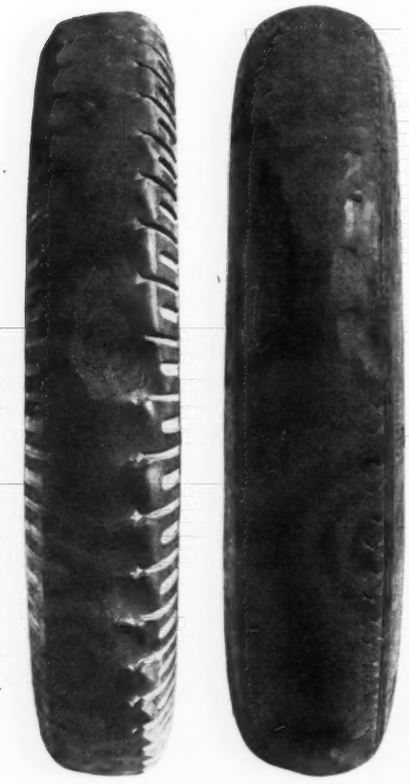
The French section of the grandstands set up the cry of "Thomas! Thomas!" The veteran captain of the Delage team, who had won the Indianapolis 500 mile race as far back as 1914 seemed rather reluctant to face the inferno whose fiery breath had wilted Benoist and Morel.

It was then that Senechal burst on to the scene, bounding out of the stands with the request that he be permitted to drive, though he never had sat behind the steering wheel of the Delage before. While he was obliged to accept relief due to the discomfort of the Delages his driving at the British Grand Prix was equally colorful and in his second start in major events he was returned the winner. Owing to the withdrawal of the cars at Monza for the remainder of the season, he had no further opportunity to display his wares but at that, his performance brings him within the coveted first five.

Big Profit in Wheel Says California

J. S. Bushey of Los Angeles Estimates Potential Volume at $10 a Car Annually—Tells How to Get Business and Render Service

By ROY ALDEN



An example of the damage looseness in the steering system and misalignment will cause to tires. Mr. Bushey says the conditions which ruined this tire are corrected by replacement or adjustment of worn or loose parts and proper setting of the camber of the axle to place the weight of the car directly over the tires

An eccentric brake drum caused the ruin of tire at left, Mr. Bushey said. By truing up the drum the tendency for the wheel to slide at one point was corrected

WITH maintenance calling for an increasingly larger share of the consumer's automotive dollar, year after year, there is constantly developing greater and broader opportunity for specialization in various branches of automobile upkeep and performance. This article is designed to present and analyze a field that is destined to assume outstanding importance as a producer of profit opportunities for live wire automotive maintenance and merchandising specialists—the field of wheel service.

The J. S. Bushey & Company, "Wheel Headquarters," of Los Angeles, may well be cited for close-up study of profit-making methods and operations of an organization that has scored substantial success in selling the idea of greater tire mileage through proper camber and wheel alignment to the automobile-owning public of Los Angeles. This firm, which operates two wheel sales and service establishments in Los Angeles, one adjacent to Automobile Row, and another adjoining one of the most populous residential districts, has built an additional volume approximating $80,000 a year from wheel service. This is "extra volume," entirely above the business done on Gruss Air Springs and other products and services of the organization.

Shortly after the advent of the balloon tire, Mr. Bushey began to realize that there was considerable work to be done, and service rendered, to car owners along the line of camber and wheel alignment. Alive to the profit opportunities offered, Mr. Bushey equipped his plant and organized and trained a force for expert wheel service. He had long been engaged in Los Angeles as a distributor of wheels and wheel products, but he had not previously gone after the wheel alignment business among car owners in a vigorous fashion, having confined his efforts largely to the truck field.

How productive has been the merchandising efforts of the Bushey organization may best be understood when it is declared that the average number of wheel service jobs now going through his two establishments will approximate 8,000 cars for the year. And the average wheel service order, including wheel parts, amounts to $10. As a distributor of wheel products, as well as an operator of two retail sales and service plants, Mr. Bushey is also encouraging the establishment of neighborhood wheel service stations in the outlying districts in the Los Angeles metropolitan area, with eminent success.

"We have conclusively demonstrated here in Los Angeles that wheel service offers a field of tremendous proportions that has hardly been scratched," says Mr. Bushey. "The same opportunities are present in every community where any number of cars or trucks are in operation. Our experience has shown that the average automobile owner requires approximately $10 worth of wheel service and parts every 10,000 miles. Assuming that the car owner will travel these 10,000 miles a year, the automotive merchant, interested in this field, can multiply the number of cars in his community by $10 and he can arrive at a fair idea of his opportunities. The wheel service house has one of the greatest selling points in the whole automotive maintenance field—that of greater operating economy. It is an established fact that if an automobile owner will have his wheels checked every month and the camber and wheels given proper alignment when necessary that he can increase the life of his tires from 35 per cent to 40 per cent. With the balloon tire in general use, the necessity of proper wheel alignment is emphasized more than ever if the car owner is to keep his tire costs within reasonable bounds.

J. S. Bushey, specialist in wheel service and sales, talking over a business problem with two of his employes

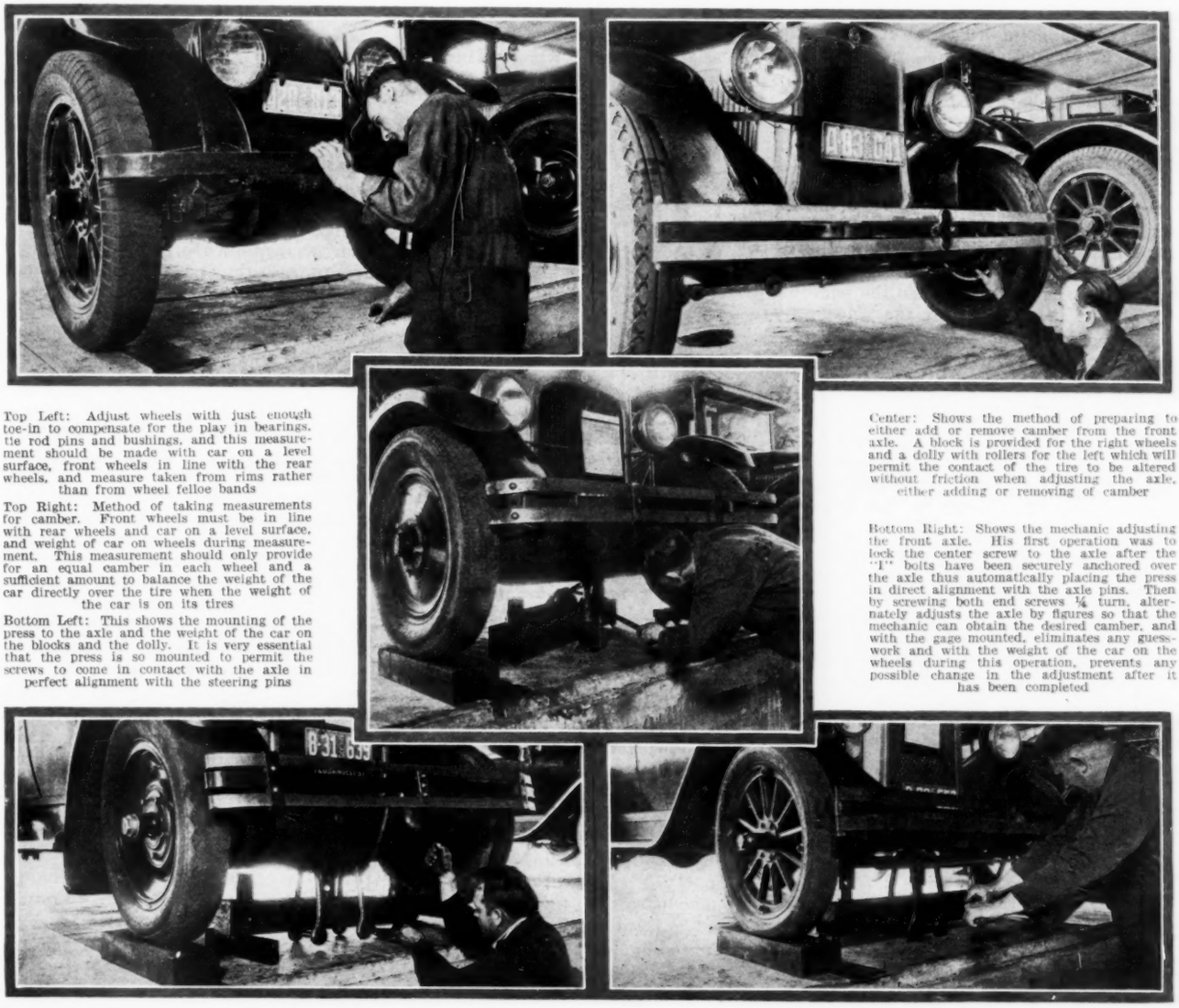
SERVICE and SALES Specialist

"Expert wheel service is a field that demands specialization. Camber and wheel alignment must be done expertly by trained wheel specialists, using efficient equipment, if it is to be done satisfactorily. I stress these facts in order to emphasize the opportunities that exist in every town and city all over this country for wheel sales and service stations. That our organization, with a minimum amount of advertising, but with plants completely equipped in every particular to give certain satisfaction to the customer, have been able to develop the volume we now enjoy, demonstrates the fact that the car-owning public is ready to respond when they know such a service is available.

"As a wholesale distributor of wheel products, as well as a retail sales and service dealer, I have been giving considerable study to what kind of allied service can best tie in with wheel service. Investigation and experience of the past two years has shown that brake relining is the logical team-mate. With expert wheel service and brake relining, the live wire automotive merchant has a combination that, properly merchandised, will yield handsome returns, because he is engaged in a field where there is a public demand that is ever present. Just as the battery dealer has educated his customers to come in at regular intervals for battery service, so should the wheel service house encourage its trade to drop in on a regular monthly schedule for checking of wheels. In our organization we make no charge for the inspection of wheels, and we believe we are justified in giving this free service, because in the long run we are more than compensated by the saleable

(*Continued on page* 21)

The five important operations in wheel alignment as set forth by J. S. Bushey, of Los Angeles, are shown in these illustrations.



Top Left: Adjust wheels with just enough toe-in to compensate for the play in bearings, tie rod pins and bushings, and this measurement should be made with car on a level surface, front wheels in line with the rear wheels, and measure taken from rims rather than from wheel felloe bands

Top Right: Method of taking measurements for camber. Front wheels must be in line with rear wheels and car on a level surface, and weight of car on wheels during measurement. This measurement should only provide for an equal camber in each wheel and a sufficient amount to balance the weight of the car directly over the tire when the weight of the car is on its tires

Bottom Left: This shows the mounting of the press to the axle and the weight of the car on the blocks and the dolly. It is very essential that the press is so mounted to permit the screws to come in contact with the axle in perfect alignment with the steering pins

Center: Shows the method of preparing to either add or remove camber from the front axle. A block is provided for the right wheels and a dolly with rollers for the left which will permit the contact of the tire to be altered without friction when adjusting the axle, either adding or removing of camber

Bottom Right: Shows the mechanic adjusting the front axle. His first operation was to lock the center screw to the axle after the "I" bolts have been securely anchored over the axle thus automatically placing the press in direct alignment with the axle pins. Then by screwing both end screws ¼ turn, alternately adjusts the axle by figures so that the mechanic can obtain the desired camber, and with the gage mounted, eliminates any guesswork and with the weight of the car on the wheels during this operation, prevents any possible change in the adjustment after it has been completed

New Brake Designed *for* Airplane Wheels

By L. S. GILLETTE

DANGERS resulting from forced landings or alighting in small fields have been minimized greatly by a new form of airplane wheel embodying a two-shoe internal brake which reduces the roll of a plane in landing by sixty per cent. Manufactured by the Sauzedde Corporation, Detroit, Mich., the new wheel and brake units are the first of their kind to be produced.

The integral wheel and brake units invented and patented by Claude Sauzedde in 1923 were developed originally for automotive application. After collaboration with several airplane manufacturers who favored the use of landing wheel brakes, the first Sauzedde units for aircraft were produced in March, 1926. Since this time the Fokker, Huff-Daland, Boeing, Verville and Laird planes have been equipped with these units while the Army air service is conducting exhaustive tests with these assemblies on all types of service planes at McCook Field.

A particular feature of the Sauzedde wheel and brake units for airplanes is that the brake is formed integral with and is practically enclosed by the wheel. This form of construction permits of a very compact design.

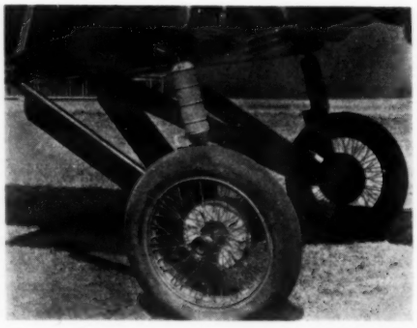
Prices according to present production schedule range from $155 for the smaller size wheel up to $600 for the largest wheels. These prices are for a set of two wheels and include the complete brake mechanism for the wheels.

On account of the high torque loads encountered with the application of the brakes and the necessity of enclosing the brake mechanism inside the wheels, the latter are of unusual design embodying three rows of spokes. This arrangement of spokes, in addition, allows for greater strength for side and lateral loads than found in the usual form of wire wheels.

The brake units for the various sizes of wheel are of the same design, except of course, for the diameter of the drum. The mechanism consists of an aluminm drum bolted to a flange at the rear of the hub by 12 cap screws. A separate assembly carrying the two-shoe, self centering and self energizing brake shoes is attached to a similar flange, the latter being secured to the undercarriage axleshaft. A cast iron liner 1¼ in. wide by ⅛ in. thick is secured to the inside of the aluminum drum during the casting of the latter. Cylindrical grooves on the outside of the liner serve to provide a better bond between the two metals. On the outside of the aluminum drum fins are provided for heat dissipation while the side of the drum is ribbed for strength. In addition, there is a recess groove on the outside of the drum to allow for mounting an aluminum disk cover which completely enclosed the inside of the wheel.

Two aluminum shoes having a $\frac{3}{16}$ in. thick friction material riveted to their faces are anchored at the top of the brake cover plate by two steel link plates. The holes in these link plates where they are attached to the brake cover have $\frac{1}{32}$ in. clearance to allow for the centralization of the shoes with the drum. At the lower ends of the two shoes, short steel ends are riveted so that the shoes can be expanded by the double faced cam through reduction levers. The latter together with the steel ends of the shoes are retained inside a bronze cage while the operation of the cam is by an adjustable lever on the outside of the aluminum brake cover.

Adjustment of the shoes is by a wedge shaped member which is in contact with two cam projections formed on the two links securing the anchored ends of the brake shoes. This wedge, which has a square shank working in a slot on the brake cover, is adjustable from the outside of the cover plate by screwing down on the adjusting screw. This action forces the wedge between the link plates which in turn spreads the distance between the two shoes. Earlier types of Sauzedde brakes as shown by the photographs used a rotating cam to spread the two shoes when compensating for brake shoe wear and adjustment in this case was by turning a nut on the outside of the cover plate which in turn rotated the cam.



Here are shown the Sauzedde wheel and brake units installed on one of the latest Verville planes. In this view the wheels are shown minus their aluminum streamline coverings. According to the manufacturers the Sauzedde units when installed on a plane are capable of reducing the "roll" of an airplane after landing by two-thirds

In this view the brake mechanism is removed from the wheel to show the two shoe, self energizing details of the brakes

In aviation work the operation of the brakes from the pilot's cockpit is by two pedals which are connected to the actuating arm on the outside of the brake covers by two steel cables. These wires are usually transmitted through the steel tubing forming the undercarriage. To provide less resistance to the air and make for neater appearance, aluminum fairings completely enclose the wheels. The design of the brake mechanism is such as to exclude dust, water or ice under all conditions.

New Models and New Organization for Oneida

Three new models will be produced in 1927 in addition to the four heavy duty trucks now manufactured by the Oneida Truck Co., Green Bay, Wis.

One of the new models will be a five yard gravel hauling truck equipped with seven speed transmission, underbody type hydraulic hoist, all steel cab, electric lights and generator.

The "Sub-Grade Special" is a short wheelbase truck with two compartment dump bodies for wet material. This has dual pneumatic tires in the rear in order to make it suitable for road construction work.

The Oneida "Eagle" is the high speed model of this line. This is equipped with a six cylinder Continental engine and is said to attain a speed of 40 miles an hour. The Oneida Truck Co. was incorporated within the last year to carry on the production of Oneida trucks.

Double Steering Used in New French Car with Quadruple Transverse Suspension

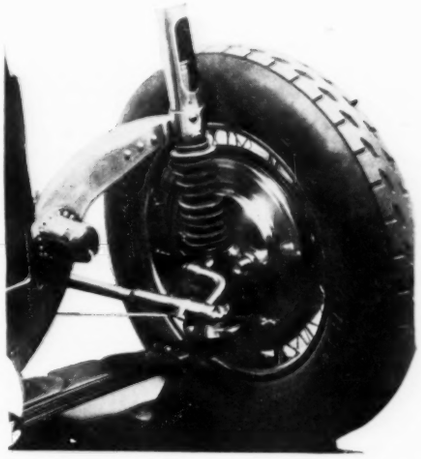
By W. F. BRADLEY

DOUBLE steering, quadruple transverse suspension and a low chassis line bringing the floor of the car to the level of the running boards, or only seven inches from the ground, are the outstanding features of a car just produced by the Cottin & Desgouttes Company, of Lyons, France. The riding qualities have been improved to such an extent that, according to Engineer Joseph, who is responsible for the design, the new car is 10 miles an hour faster than the previous model over long runs of 250 to 300 miles. This comparison is made, of course, with cars identical so far as engine, gear ratios and weight are concerned, the higher average being attained entirely by the ability to keep going over rough roads.

The Cottin Desgouttes is the first car to be put into production with duplicate steering, but Engineer Waseige, of the Farman Company, already has shown that when each wheel is steered independently, shimmy cannot exist. This is confirmed by the Cottin & Desgouttes Company and is one of the reasons for the adoption of duplicate steering on the new model. Tranverse oscillations of the front end of the chassis are only engendered when the two wheels wobble in unision, for individual wheel wobble is rarely violent and usually is damped out by the road profile after a very brief interval.

The side rails of the new Cottin & Desgouttes have a considerable upsweep in front, to give clearance under the engine, and they are united by two main cross members, one being at the extreme rear and the other being immediately behind the drop. Rivetted to the two cross members are a couple of longitudinal members, forming a central tunnel within which the drive shaft is carried. A flat sheet metal underpan is attached to the bottom flanges of the side rails, thus forming two long lockers having a depth equal to the height of the frame, and made use of for carrying tools. No external tool boxes are required.

The differential housing is bolted to the rear face of the rear cross frame member, which latter is cut away for the drive shaft to pass through. This differential housing is a normal type containing a spiral bevel gear and from it project two transverse drive shafts with Spicer universal joints. Two very broad and flexible transverse springs are clipped to the top of the housing,



Left front wheel showing unusual chassis suspension

in the same horizontal plane, the distance between them being about five inches, and two other springs are mounted in the same way under the differential housing. A forged eye being bolted to the extremity of each main leaf, the two upper springs are united by a short shaft and the two lower springs are connected in the same way. This allows the two pairs of springs to be pivoted to the upper and the lower extremities of a housing in Alpax metal (this metal has been selected in order to reduce unsprung weight) containing the wheel bearings and carrying the fixed hub.

At the front of the chassis there is a channel section cross frame member having the shape of a very open V. Within the channel there are two forged housings each containing a very heavy cylindrical block of rubber, and on the extremity of each side rail there is a forged piece terminating in a stud, onto which the rubber bushed cross frame member is fitted. With rubber washers in front and behind, this gives a complete elastic mounting. The cross frame member has to be drilled to allow of the nuts being screwed on the studs, but this opening is covered by a cap.

The suspension of the two front wheels being independent, it was decided to maintain this independence in the steering gear, with the result that not only is greater security obtained—for should one gear break the car could be controlled through the opposite gear—but all tendency to shimmy has been removed.

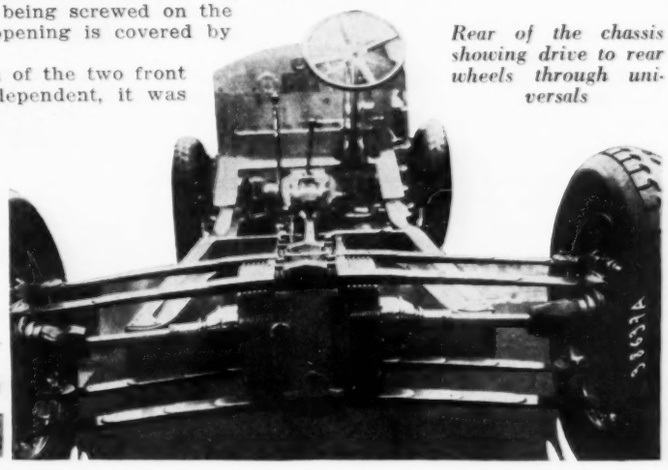
Two main steering levers are provided, one of these (on the right) being mounted direct and the other (left hand) being on an extended shaft with bearings on the forward face of the aluminum dashboard. The two levers have to move in opposite directions and this inverse movement is obtained by a crank and connecting rod mechanism. The steering is screw and nut type and has the advantage of providing duplicate control with a single mechanism. Connection is made from the main steering levers to the arms on the steering knuckles in the usual way by longitudinal rods with ball and socket connections.

Wall Oil Filter

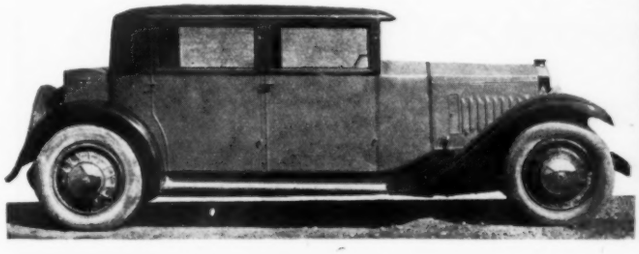
AN oil filter of novel construction is being produced by the Rectifier Mfg. Co., 1112 S. Michigan Ave., Chicago, Ill. This incorporates a filter sack of fine woven flannel which has 500 square inches of filtering area. The sack is cylindrical and is fitted with alternate small and large rings to give it the bellows shape shown in the illustration.

The device is particularly well designed from the service angle for it is possible to remove and clean the filtering sack without removing the device from the car or disconnecting either of the oil line connections. The path of the oil is also from the outside toward the center so that all dirt accumulation is on the outside of the sack where it is easily washed off in a bucket of gasoline. This device which is known as the Wall Oil Filter can be installed on any car having a pressure oiling system and in no way affects the regular operation of the system. The filter lists at $5.00.

Rear of the chassis showing drive to rear wheels through universals



Cottin & Desgouttes four-door sedan with transverse springing, duplicate steering and drop frame



Accessory Introductions

DOLE THERMOSTAT

The Dole thermostat is an automatic water control valve for regulating the temperature of the engine. It raises the temperature to 160° F. in three minutes, it is claimed, and the company states this temperature is maintained under all conditions. It is also said to reduce crankcase dilution and the water content in the oil pan. No adjustment is required. Quickly and easily installed taking only 15 minutes—it is only necessary to cut out three inches of the upper hose connection between engine and radiator to insert. It is not necessary to remove it during any weather or season of the year. Can be furnished for all cars equipped with water pump circulating systems having inside diameter of upper hose connection 1", 1¼", 1⅜", or 1½". List price $10. —Dole Valve Co., 1913 Carroll Ave., Chicago, Ill.

TRICO VISIONALL WIPER

Two blades are used on the new Trico Visionall windshield wiper. The twin blades of this air-driven cleaner sweep back and forth across the entire windshield and as the blades are always in a vertical position, the rain runs off at the bottom of each blade. When not in use both blades are together at one side of the windshield where they cannot drop down and interfere with the drivers vision. While the cleaner is in use the two blades are separated by approximately one-half the width of the windshield. Price $12.50. Trico Products Co., Buffalo, N. Y.

WEDLER-SHUFORD CUSHION

Air spring cushions are now being manufactured by the Wedler-Shuford Co., 1116 S. Grand Blvd., St. Louis, Mo. The wedge cushion for the back of the seat, has 30 individual springs, each spring being separately tied and wrapped in burlap. The seat cushions have 52 springs and are arranged in a similar manner. Both models are offered in corduroy and the wedge cushions have tassells on the side. The center of each cushion is covered with Japanese grass to permit the air to enter and leave the cushion. Prices vary from $2.75 to $6.50.

IN its issue of January 13 MOTOR AGE *presented descriptions and cuts of a number of accessory products shown for the first time at the 1927 automobile show in New York.*

On this and the following page readers will find descriptions and illustrations of many more such items. The accessory division of New York's show was very interesting and the automotive merchant naturally is keenly interested in its various introductories whether in the form of revolutionary departures or modifications for the end of improvements.

In this section of MOTOR AGE *both the complete departure and materially improved device are regarded as "new."*

AUTOMATIC "DOT" GREASE GUN

An automatic feed grease cup has been added to the "Dot" line of lubricators. The cup or container is filled by means of a regular gun and connector and the lubricant is then forced to the bearing surfaces by the pressure of a coiled spring acting on a plunger. The tension of this spring can be adjusted by means of a knurled nut on the outside of the cup. It is being made in two sizes, 1 oz. and 2 oz. which are priced at $2.50 and $5.50 respectively. Without the spring tension adjuster the prices are $2.25 and $5.00. —Carr Fastener Co., 31 Ames St., Boston, Mass.

CARTER TRIMMING

The Geo. R. Carter Co., Connersville, Ind., announces a new trimming. Instead of leather, the base inside material is composition, having elastic qualities. Lower in price than the leather trimmings of the company, it is claimed that it has long life.

LANDIS SHOCK DIFFUSER

A new hydraulic shock absorber is known as the Landis Shock Diffuser. In principle it is stated to resemble the usual form of hydraulic absorber but the by pass and inlet are always submerged in oil. By this means no air can get into the working cylinder. The resistance is said to be always in proportion to the load, and acts instantly without any lag.—Landis Engineering & Manufacturing Co., Wanesboro, Pa.

DE LUXE SIDE WING

A De Luxe side wing is announced by the Tonneau Shield Co., Inc., 47 West 63d St., New York City. Designed for the Cadillac sport phaeton, it will be made to order for other models. An outstanding feature is the jaw type of hinge, which permits quick locking of the wing in any position.

ILLUMINATED SAFE-T-STAT

It is announced by The Safe-T-Stat Co., Inc., 79 Bridge St., Brooklyn, N. Y., that, at a moderate advance in cost, the Safe-T-Stat Motor Heat Indicator can be obtained illuminated. Premier model, with black or white dials, illuminated $8.50; Universal model, for thermo-syphon and pump cooled cars, nickel or black, illuminated, $6; Dodge special model, for six or twelve volt eelctrical system, illuminated, $6. Another new development of the company is the "watch case" Safe-T-Stat, a circular model, intsead of oval.

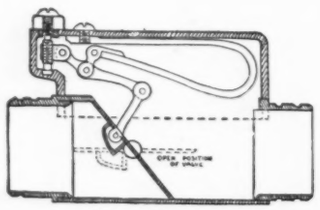
BENEKE THERMOSTAT

The Beneke Mfg. Co., 21st and Rockwell Sts., Chicago, is now manufacturing a thermostat which instead of a bellows uses a wafer diaphragm. This is designed for installation in the hose connection between the radiator and the engine and is set to operate at from 145 to 175 deg. Fahr. It is housed in an aluminum shell and weighs 14 oz. Price $5. This Company also announces a change in design in its carburetor which permits the float chamber to be placed in either of two positions.

NATOLI SPARK PLUG

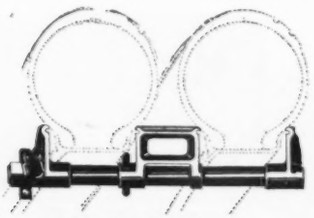
The feature of this plug is a half inch electrode, which is said to facilitate the production of a spark of unusual tensity. It comes in four sizes fitting every make of car. For Ford cars, 60c; for other makes, 75c.—Natoli Mfg. Co., Inc., 220 West 238th St., New York City.

Illuminated Safe-T-Stat Motor Heat Indicator



Dole Thermostat

Hassler shock absorbers for Oldsmobile and Whippet



Rimplex Tire Carrier

At New York's 1927 Show

RUBBER UNIVERSAL JOINT

A rubber universal joint with steel jaws to take the strain of severe torque was exhibited at the New York Show by the Sheldon Axle and Spring Co., Wilkes-Barre, Pa. This is offered for use as original equipment and as a replacement as well. Externally it has the appearance of a disk beveled on both sides. Each set of attaching studs is held in a steel disk moulded in the composite rubber. Integral with each of these disks are three jaws which intermesh and which only come into contact under sudden and severe torque. For purposes of alignment a ball and socket is incorporated in the design, the ball being a part of one plate while the socket is integral with the other.

ZEP AND GRUBAR BUMPERS

Two new bumpers have been added to the line manufactured by the C. G. Spring and Bumper Co. of Detroit. One is known as the Zep while the other is called the Grubar. The former takes its name from its appearance as it resembles a Zeppelin and is essentially a three bar bumper with the upper and lower bars titled and all three being tapered at the ends and bent back. A rear bumper called the Parabar is designed to match the Zep, both being finished in black and nickel. The Grubar is a rib steel bumper and prices on both these models will be announced later.

DANVILLE TRUNKS

Two new Danville trunks have been added to the line manufactured by this company. These are both wooden trunks, one being covered with steel while the other is covered with Fabrocoid. The steel covered trunk lists at $35.00 and is designed to hold two suit cases and a box. It is said to be water and dust proof and is offered in black or colors with nickel or brass trimmings. The Fabrocoid covered trunk is provided with straps and is finished with nickel clasps and lock and lists at $40.00.—Danville Trunk Corp., Danville, N. Y.

SPRING-EEZ CONTAINER

A quart brass container, with conventional rifle, has been produced by Halstead Specialties Co., Oakland, Cal. It is built so that even if filled to overflowing sufficient air space is left to enable the rifle to discharge the entire contents.

GRAND CONCOURSE BUMPERS

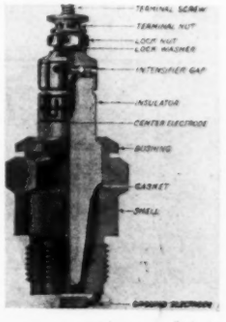
Grand Concourse is the name given by the Standard Safety Sales Corp., 1775 Broadway, New York, to its new bar bumper. This is a three bar bumper, which in the center are close together, but at the ends flare out and separate into two bars. Mountings are provided for spot lights on the rear bar and the light rays may be raised and lowered by means of adjusting screws. The rear bumpers which are also included in the set are fitted with red and green jewels. Finish is black and nickel. Price $90.00, lights $40.00 additional.

NACLITE

A spot light controlled from the dash is being distributed by the National Sales Co., 36 West 63 St., New York. The light is known as the Naclite and the light beam can be raised and lowered and also rotated by means of the control handle. The beam is said to penetrate fog and smoke. It is being produced in two models, one with a clear lens, which lists at $20.00 and another with an amber lens which lists at $25.00.

PORTABLE VACUUM CLEANER

A new vacuum cleaner for use on automobile bodies is being shown by Asch & Co., New York City. This is an unusually powerful cleaner and has a nozzle which will clean any place in the car. To secure light weight, aluminum is used extensively in its construction.



Duro Spark Plug

GABRIEL SNUBBER

A new shock absorber called the "antipreloading brake" has been placed on the market by The Gabriel Snubber Mfg. Co., Cleveland, Ohio. Following out the conventional design of this company's product, when the car strikes a bump, the car springs compress, causing the Snubber belt to recede into cup, releasing the anti-preloading brake. The anti preloading brake does not allow the Snubber coils to operate until the car springs deflect beyond certain limits. When the springs do deflect beyond this limit, the internal coil compression spring expands—instantly taking up the slack in the belt. When the rebound of the car springs starts, the coils of the belt immediately tighten creating friction on the multiple coils and gradually increasing the brake action, allowing car springs to return to normal position without jerk.

DURO SPARK PLUG

A change has been made in the construction of the Duro spark plug. The intensifier spark gap is now in a metal cap above the insulator instead of within the insulator as here-to-fore. The metal cap is pierced with holes so that the spark may be observed. The electrodes have also been changed, a new alloy being used in their construction. This plug is said to fire under adverse oil and carbon conditions. Price $1.00 each. The Duro Company, 136 Tichenor St., Newark, N. J.

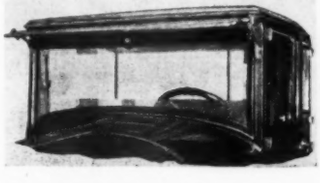
RIMPLEX TIRE CARRIER

Several constructional details of the Rimplex, a device for attaching an additional spare tire to the spare tire rack, have been changed. The device now consists of three complete units and each unit grips the tire independently. There is no interference with the original carrier and if the tail light is mounted within the carrier it is not obscured. Price for all tires up to and including 6.20 is $4.00.—Tripp-Secord & Co., Detroit, Mich.

HASSLERS FOR OLDSMOBILE AND WHIPPET

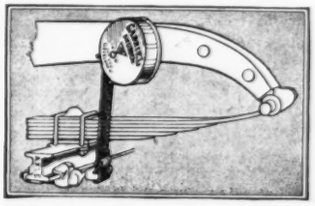
Hassler shock absorbers for checking rebound on Oldsmobile and Overland Whippet have been added to the line of shock absorbers manufactured by this company. These shock absorbers operate on the same principle as other Hassler absorbers but are designed especially for these cars. Robert H. Hassler, Inc., Indianapolis, Ind.

(*Continued on page 21*)



Trico Visionall Windshield Wiper

Spring-Eez Container



Gabriel's Anti-Preloading Brake

NEW SHOP EQUIPMENT SEEN

SHOEMAKER MAIN BEARING EQUIPMENT

A universal main bearing boring fixture suitable for work on all bearings from 1½ in. diameter and up is being exhibited by the Shoemaker Automotive Equipment Co., Freeport, Ill. Bearings may be bored in either direction and cutting tools may be easily and quickly set to diameter. The list price on this unit is $300. The same company also is showing a new precision aligner for connecting rods from 5½ to 16¾ in. in length without the piston and up to 20¾ in. with the piston. The list price of $65 includes a dial gage.

FERRET WRENCH SET

"Ferret" is the name given to a new wrench kit designed to facilitate work in awkward places, which is being shown by the Snap-On Wrench Co., Chicago. The set includes two double end, double broached sockets for use in positions where only a few degrees of wrench movement is possible, sliding bar tee and offset handles, extension bar and four interchangeable sockers, all packed in a metal kit. Price is $7.50.

WATERVLIET DIAGONAL ADJUSTABLE REAMERS

A new line of diagonal adjustable reamers is made by the Watervliet Tool Co., Albany, N. Y. They are made with and without pilots. With pilots the range of sizes extends from 19/32 to 1-17/32 and the prices from $9.50 to $18.00. Without pilots, the price range is $4.50 to $10.00 and the size range from 15/32 to 1-17/32 in.

SPEED-SPRA AUTO WASHERS

In addition to the one gun, two man Hayes electric Speed-Spra auto washer, listing at $275.00, which was recently announced, the Hayes Pump & Planter Co., Galva, Ill., is now building two gun, three gun and four gun outfits listing at $350.00, $450.00 and $550.00 respectively. These new models are also featured by Alemite lubrication.

K-D VALVE SPRING LIFTER

An improved universal valve spring lifter has been announced by the K-D Mfg. Co., Lancaster, Pa. Furnished complete with 6 jaws, it will service all "L" head engines, it is claimed. Made entirely of pressed steel, the locking device is hardened and engages in eleven positions. It is "Parkerized" against rust. A chart showing proper jaw combinations for the various engines is printed on the carton.

SKINNER OIL RECLAIMER

This device has been devised to meet the specific need of the fleet owner. It is foolproof and automatic, according to the manufacturer. It removes the contaminating impurities, yielding a lubricant in quality closely resembling the original oil. Operation is simple. The contaminated oil is first placed under vacuum and the liquid impurities (water, gasoline, acid, etc.) are vaporized and driven off at a relatively low temperature by combined heat and aeration. Before entering the filter tank the hot oil is passed through a preheater where it warms the incoming dirty oil. This reduces the amount of electrical energy required and makes for economy. Specially treated filters next remove dirt and abrasives from the oil. The reclaimed oil drains by gravity into the receiving drum.—Skinner Automotive Device Co., Inc., 1637 Lafayette Blvd., Detroit.

FAWSCO SOCKET WRENCHES

A new feature on the Fawsco socket wrenches is that each socket is side drilled so that a rod may be inserted, in addition to the regular square opening at the top for square shank handles. The side openings permit the use of the socket wrench where there is little over-head clearance. Another feature is that each of the handles is provided with a set screw in addition to the usual spring ball. This set screw when tightened prevents the socket from dropping from the handle. A variety of sets are offered in steel and fibre boxes. Prices vary from $4.75 to $35.00.—Fawsco Wrench Co., 27 Warren St., New York, N. Y.

MACK VALVE REAMER SET

Albertson & Co., Inc., Sioux City, Ia., is showing a new valve reamer set which is designed specially for use on Mack truck engines which have solid heads and consequently require a different design than the detachable head power plant.

ADAMS GREASE GUN

A new air grease or oil gun for service station use is now being offered to the trade. This is known as the A50 and has a capacity of 50 lb. of grease. The container is fitted with a Schrader air valve and 80 lb. of air is pumped into the container. This forces the lubricant through a large diameter hose which is 8 ft. in length. A regular type Adams grease gun is attached to the other end of this hose and by this means the pressure on the lubricant is increased and is forced through the bearing. When used for filling transmissions and rear axles, the booster head on the gun is replaced by another head and the lubricant is forced to the housings under air pressure only. Price $50. Adams Grease Gun Corp., 329 Fifth Ave., New York, N. Y.

BIAX POLISHING EQUIPMENT

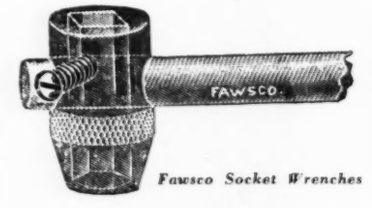
This device is designed for rubbing down and polishing in the paint shop. It consists of a portable stand and 1/3 hp. motor which drives the working head through a flexible cable. The rubbing pads have a reciprocating motion and cover 290 ft. per minute. For wet sanding, a rubber hose 10 ft. long is furnished for the water supply. The manufacturer is the Biax Flexible Shaft Co., 136 Liberty Street, New York City.

NEW EAGER TEST BENCH

A new test bench featured by the provision that is made to test ignition systems under compression, is being introduced by the Eager Electric Co., Watertown, N. Y. Another feature is the flexible drive, a rubber hose of large section being used for this purpose. The universal holding vise is of a new design and the motor is mounted on slide rails. A variable voltage transformer is provided to give motor speed variation.

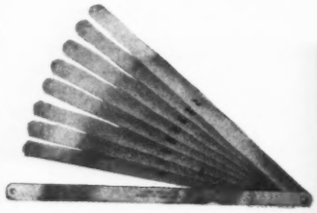
HUTTO CYLINDER GRINDERS

Three new cylinder grinders of the hone type are being shown by the Hutto Engineering Co., Inc., Detroit. These include a portable type listing at $495 and two larger units complete with bed plates and listing at $750 and $1,250 respectively. Another new item shown by this manufacturer is the wrist pin hole grinder which is also of the hone type. This grinder finishes holes from ¾ to 1-3/16 in.

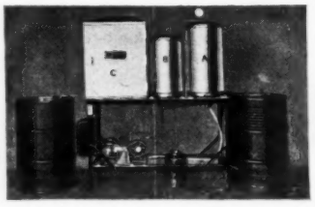


Fawsco Socket Wrenches

Watervliet diagonal adjustable reamer

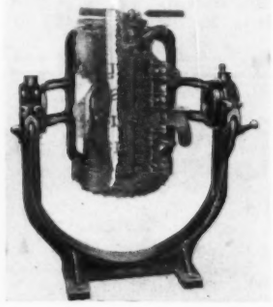


Fleming thickness gage, especially suitable for checking piston clearance. Price $2.25



Skinner Oil Reclaimer

Shoemaker main bearing boring equipment



Kent Moore model K-13 Chevrolet engine stand. Price $49

AT NEW YORK'S 1927 SHOW

FLEMING MICROMETERS AND PRECISION TOOLS

A line of outside micrometers is one of a large list of precision tools introduced by the Fleming Machine Co., of Worcester, Mass., at the New York Automobile Show. The micrometers are built with an extra heavy vise to meet the severe demand in the maintenance shop. Net list prices are $6.00 for the one inch, $6.75 for the 2 inch and $8.25 for the 4 inch model.

Extension type heavy duty micrometer sets are also available as follows:

No. 1206 Range 0 in.—2 in.....$10.00
No. 1207 Range 0 in.—4 in..... 14.00

Other items in the Fleming line are as follows:

No. 1225	inside micrometers range to 5 in.	$7.50
No. 1337	combination square	3.00
No. 1332	25/32 by 6 in. steel rule	.70
No. 1333	7/16 by 6 in. steel rule	.70
No. 1334	slide caliper rule	1.85
No. 1313	to 1316 outside calipers	1.10 to $1.50
No. 1303	to 1306 inside calipers	1.10 to 1.50
No. 1323	to 1326 dividers	1.10 to 1.50
No. 1345	thread gauge	1.00
No. 1340	thickness gauge	.70
No. 1342	thickness gage for fitting pistons	2.25

There are also a number of mechanic's precision sets ranging in price from $9.00 to $34.50 and including various combinations of calipers, scales and micrometers depending on the price.

CONSTANT POTENTIAL CHARGER

The Electric Machine Corp., Indianapolis, Ind., is displaying a new constant potential battery charger which is made in 18, 24 and 36 battery sizes. The features of the charger are accurate automatic voltage regulator and the individual current control provided by means of small rheostats and ammeters for each battery. The charger may also be had without the individual control feature. The 24 battery size complete with individual control, 24 ammeters, switchboard, ammeter and voltmeter, bench, motor generator, bus bars, leads and clips, is priced at $690.

CHEVROLET ENGINE STAND

A new engine stand designed for the Chevrolet engine is being shown by the Kent-Moore organization, Detroit. This stand, which is known as K-13, weighs 275 lbs. and lists at $49.

FLUID TYPE DYNOMOMETER

There has just been placed on the market a fluid dynamometer which is especially designed for repair shop work. At present it is being built in a 50 h.p. size which lists at $400. Two other sizes, 30 and 120 h.p. will also be produced. The amount of torque is controlled by a hand valve placed in the line. The torque may either be measured by means of weights placed on one lever arm or by means of scales. A unit resembling a steam condenser, is used to cool the fluid after it has passed through the dynamometer.—Metal Stamping Co., 14th St. and Boulevard, Long Island City, N. Y.

BRUNNER PAINT GUN

A new paint gun with die-cast aluminum body and spun aluminum cup is being displayed by the Brunner Mfg. Co., Utica, N. Y. The cup screws into the top and locks with 1½ turns. The spraying tip is designed so that either a flat or round spray may be obtained and a fine adjustable needle provides accurate control. It is easily cleaned and, due to the use of aluminum, it is light in weight. The list price is $33 with hose or $28 without.

PNEUMATIC GREASE GUN

Charles P. Rogers & Co., Inc., Jersey City, N. J., is exhibiting a new Model HA grease gun which is operated by compressed air. It is arranged to be supported by a strap from the operator's shoulder. The price is $40 which includes all attachments and adapters for Alemite, Zerk and Dot systems.

ORO COMPRESSOR E-66

A new compressor with a capacity of 2.2 cu. ft. is being exhibited by the Au-To Compressor Co., Wilmington, O. The compressor is mounted on top of a 16x36 in. tank and is driven by a ½ hp. motor. The list price is $348.

G-H VALVE SPRING CABINET

A limited number of service station valve spring cabinets containing 385 valve springs of 27 different numbers to fit 15 of the more popular cars and a service cabinet containing an assortment of valve stem keys, piston pin retaining springs and tension rings is announced by this company. These cabinets are described as being substantially made of hard wood and stained a dark walnut. The list price of the valve spring assortment and cabinet is given as $73.26 while the other assortment and cabinet lists at $331.75. The G-H Mfg. Co., 6-8 East Mount Royal Ave., Baltimore, Md.

K-D HEAVY DUTY COMPRESSOR

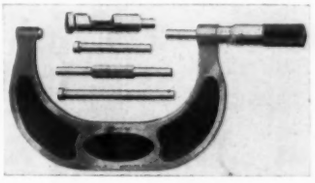
The K-D Heavy Duty Compressor is designed to service large truck and bus engines without removing manifold. The automatic lock engages in 8 positions and allows operator free use of both hands to remove valve stem key. For replacing springs, the compressor attachment will take all sizes of springs which are conveniently held in spring holders furnished with each tool. Parallel lift—rigid construction and "Parkerized" against rust. Complete with spring holders, each $7.50. Special for Mack Bull Dog engine each $8.50.—K-D Mfg. Co., Lancaster, Pa.

AC GASOLINE PUMP

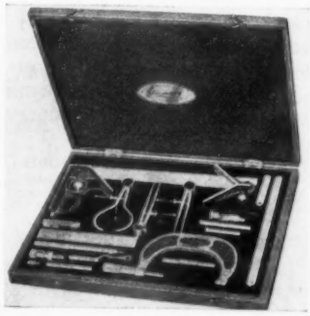
The AC Spark Plug Co., Flint, Mich., displayed a mechanically operated device for pumping gasoline from the supply tank to the carburetor. The pumping action is secured by the movement of a mechanically actuated diaphram and it is stated that this action is proportioned automatically to the requirements of the engine. Incorporated in the design is an AC gasoline cleaner, which excludes foreign matter.

U. S. CAR WASHER

A totally enclosed one gun car washer is offered by the U. S. Air Compressor Co., Cleveland, O. This is a self oiling unit and delivers water at 300 lb. pressure. The pump is driven by an electric motor and is connected directly to the water mains. Price $296 which includes 25 ft. of hose and a spray gun.



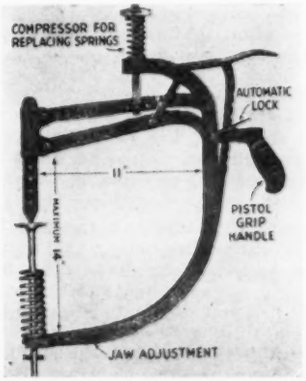
Fleming No. 1207 micrometer set. Range 0 in. to 4 in. Price $14.00



Fleming No. 1225 inside micrometers. Range to 5in. Price $7.50

New Oro Compressor. It lists $348

Biax Rubbing down and polishing equipment



K-D Heavy Duty Compressor

Operation Principles *of* K-S Telegage

THE K-S Telegage works on an interesting engineering principle which should be understood by all who are engaged in automotive service. Fig. 1 is a simplified diagram showing the general principle of the Telegage in the condition where installation has been made but the gasoline tank has not yet been filled. The instrument portion of the Telegage which is seen on the cowl board looks something like a thermometer, for it contains a liquid which rises and falls to indicate the amount of gasoline in the tank. This glass tube which is seen on the gage is

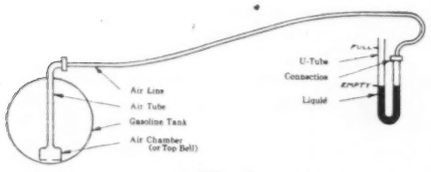


Fig. 1

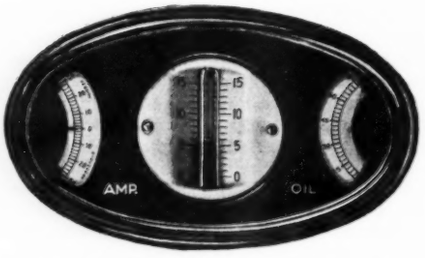
Simplified principle of the gage showing conditions that exist when tank is empty

one leg of a U shaped tube which is also indicated in Fig. 1. With no gasoline in the tank there will be nothing to affect the liquid in the U shaped tube so it will settle in such a way that the level is the same in both legs of the U shaped tube. This will be at the zero or empty position as far as the gage is concerned.

Now we will assume that gasoline is poured into the tank. It will first rise to the air chamber at the bottom of the tank and will try to enter this air chamber. As it does so, however, it will force air ahead of it and this air will exert a pressure on the liquid in the U shaped tube and will force it to rise in the tube which is part of the gage. As more and more gasoline is poured in the tank it will increase the air pressure in the air line and consequently increase the gage reading. In Fig. 2 we have the condition shown where the gasoline tank is full and the liquid has been forced up in the gage until it indicates that the tank is full. The readings will be correct as long as the air line and air tubes are full of air.

In measuring gasoline, however, we run into a difficulty because of the volatility of the liquid. Vapor rising from the fuel saturates the air in the tank and connections and this, together with variation in temperature, renders the gage inaccurate if made in the simple manner shown in Fig. 1 and 2. In actual practice the gage itself is made as shown in Fig. 3 and the tank unit as shown in Fig. 4. The gage of Fig. 3 contains an adjusting nut which makes it possible to raise or lower the brass tube.

Another adjustment is obtained by means of calibrating wires, any number of which may be dropped into the brass tube to compensate for inaccuracy. In practice it is out of the question to have the glass tube accurate in size. For this reason the brass tube is made slightly oversize and then the proper number of calibrating wires are used to give correct reading. The construc-



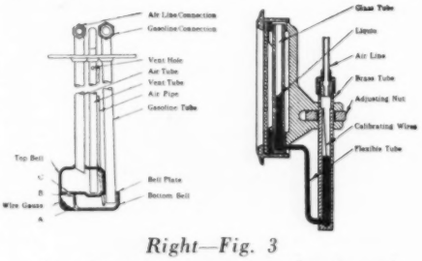
K-S Telegage mounted as a unit with the oil gage and ammeter

tion of the tank unit shown in Fig. 4 is such that the operation of the vacuum tank introduces air into the top bell so as to keep the air line continuously full of air and force out any gasoline which might work up into the air line.

At the bottom of the tank unit shown in Fig. 4, there are 2 bells, a top bell and a lower bell slightly off center and separated from each other by a bell plate. A small hole in the bell plate places the two bells in communication with each other. There is a hole A near the bottom of the lower bell and two small holes C in the bell plate which provide for communication between the top bell and the gasoline tank. A wire gage screen keeps dirt from clogging the holes A, B and C.

The air tube extends from the top bell to the top of the gasoline tank and is connected by the air line to the top of the threaded metal tube of the gage. The gasoline tube extends from near the bottom of the lower bell to the top of the gasoline tank and is connected by the gasoline line to the vacuum tank. A small air pipe extends from the bottom of the lower bell to the outer surface of the top of the tank.

When the vacuum tank operates it draws gasoline through the hole A into the bottom bell and then through the gasoline tube. The size of the hole A



Right—Fig. 3

Actual gage construction showing adjusting nut and calibrating wires

Left—Fig. 4

Tank unit showing construction which permits air to enter and remove gasoline from air line each time vacuum tank operates

is so regulated that a small suction is created within the bottom bell. This suction is just sufficient to cause a small quantity of air to pass down thorugh the air pipe into the lower bell. Some of this air is carried away with the gasoline to the vacuum tank. Another portion is trapped and remains in the upper part of the bottom bell. When the vacuum tank ceases to operate, the air which has been trapped in the bottom bell bubbles up and forces any gasoline which may be in the air bell out through hole C. Thus air is replenished at each operation of the vacuum tank.

The K-S Telegage is made by the King Seeley Corporation of Ann Arbor, Michigan.

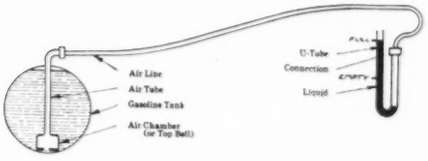


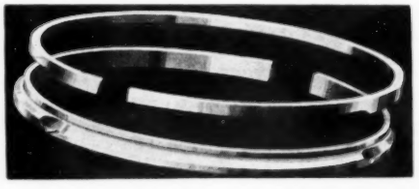
Fig. 2

Simplified diagram showing conditions when gasoline tank has been filled

New Piston Ring Embodies Cam Principal

The Rotocam piston ring, embodying a new design, has been placed on the market by the Rotocam Piston Ring Sales Co. of Detroit.

This new ring is constructed in two pieces, the two ring sections joining on an angular cam face with small oil



The Rotocam piston ring

channels cut into the lower ring section. Immediately as the piston travels downward in the cylinder, the lower ring section encounters slight resistance in scraping the film of oil from the cylinder wall, a small portion of this oil is forced into the angular oil grooves and causes the upper ring section to rotate. This rotary action of the ring section brings the cam action into play causing the ring to expand in conforming to the cylinder wall.

Plan for Peoria Show

PEORIA, Ill., Jan. 15.—Plans for the Peoria automobile show at the armory, Feb. 14-19, are well under way and preparations are being made to accommodate a greater entry list than ever before. P. F. Norman is chairman of the committee; C. A. Roadstrum, L. E. Graham, Merle Smith and A. G. Thede are members of the general committee.

Year's Sales Increase

MILWAUKEE, Wis., Jan. 15.—Sales of new passenger cars in Wisconsin for 1926 were 98,656, compared with 80,895 during 1925, official figures reveal. This is an increase of 19,196, or approximately 22 per cent.

BIG PROFIT IN WHEEL SERVICE AND SALES

(Continued from page 13)

service rendered and merchandise sold as a result of the frequent contacts. For instance, the wheel service house that regularly checks a car owner's wheels is almost certain to get his brake lining business when it develops.

"While on this subject of profit opportunities from each customer contact, I want to say something about bolts and nuts. In our establishments we average a sale of bolts and nuts to one out of every two customers who drive in for wheel service. These fifty cent and seventy-five cent orders mount up mighty fast.

"I would estimate that it requires about $2500 to equip and stock a medium-sized wheel service station that would be able to do a nice volume of business. This amount would be divided about $1500 in equipment and tools and $1,000 in merchandise—wheels, rims, bolts, nuts, etc. This item of $1,000 probably requires some explanation, as it may at first thought seem rather high for a comparatively small place that is engaged essentially in service.

"There is a surprisingly large market for new wheels that is not generally recognized. This market does not result entirely from wheels that are worn out or damaged by accident, but combines the changing fancies and preferences of car owners. A large percentage of owners like to give their car a new dress now and then, particularly after it has seen considerable service. The man who has had wire wheels develops a desire for natural wood wheels. And the man with wood wheels takes a fancy to steel wheels. We sell a good many carloads of new wheels in our territory every year, and a good share of this stock is sold to car owners with changing preferences.

"Getting back to the $1,000 worth of merchandise suggested for the wheel service dealer, I believe he should have on hand, and properly displayed, various types of wheels, so he can cash in on the opportunities that are offered for sales of new wheels. Here is one item of merchandise that must be stocked, in at least sufficient quantity for display, in order to be sold.

"If a wheel service dealer can bring into his establishment on an average of eight camber and wheel alignment jobs a day, he will have a very comfortable business that is bound to expand through natural development. Eight jobs a day can easily be handled in an establishment that provides sufficient space for three ordinary stalls; that is, of course, providing the cars do not all come in at the same time. The equipment required for a complete wheel service station includes axle press, drill press, equipment for "jumping in" wheel spokes, equipment for trueing up wire wheels, machine for turning brake drums, brake lining equipment, and an assortment of small tools.

"For the average wheel service station, whether operating on a larger scale, or in a neighborhood community, 50 per cent of his trade should come from tire shops, garages and other automotive establishments in his district, and 50 per cent from the public direct. The trade should invariably be cultivated by the wheel service station, so they will sell wheel alignment jobs and divert the work to his place of business. Among the garage trade in our territory we pay a straight 20 per cent for all jobs sent in to us. The garage men whom we appoint as 'authorized stations' are furnished with a form known as an 'introduction card.' When a garage man has aroused the desire of a customer to have his wheels expertly checked, he fills in the card and hands it to the owner."

When the customer drives into the Bushey establishment, the wheels of his car are checked and he is then informed what is necessary. If he okey's the job, it is all done in the Bushey plant, and the bill is paid to the Bushey company. At the end of the month a check is mailed to the garage man as his commission.

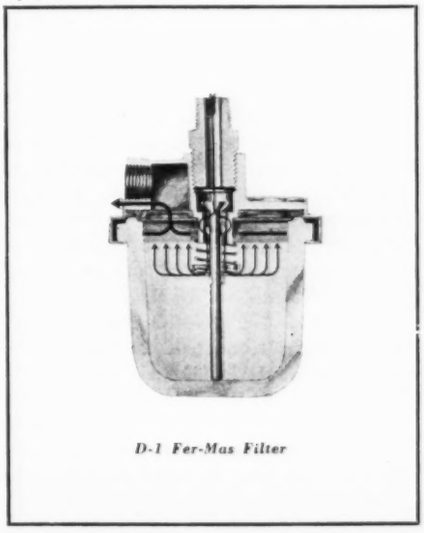
"The definite purpose of the wheel service station," says Mr. Bushey, "is to increase tire mileage. This is accomplished by balancing the weight of the car directly over the tire and placing the tire in perfect contact with the road surface. Additional adjustments which give the proper toe-in and caster to the front axle permit the car when in action to take the turns and entirely eliminate side wear friction. When the conditions under which the car is to be operated are understood, and this principle is followed out in making adjustments to any part of the car, it will not be difficult for the mechanic to obtain efficient results for delivery to his customer."

Accessory Introductions at New York's 1927 Show

Other descriptions on pages 16 and 17

D-1 FER-MAS FILTER

For every description of liquid fuel apparatus where ⅛ to ¼ in. pipe fittings allow sufficient flow. When fitting to vacuum tank use the outlet hole in center of bottom when possible, rather than the other hole, which is out of center. Its main features, according to the company, are larger and more direct fuel passages, instant release of sediment cup for cleaning, etc., no opening in bottom to allow fuel to spill when detaching cup, when cup is removed fuel valve is automatically closed, when cup is replaced fuel valve is automatically fully opened instantly. List price complete $2. Shipping weight ½ lb., extra cups or screens 40c each. Extra gaskets, 8c.—The Fer-Mas Co., 235 Elizabeth Ave., Newark, N. J.



D-1 Fer-Mas Filter

Bendix Brake Expands

SOUTH BEND, Ind., Jan. 15.—The Bendix Brake Co. is erecting another large addition to its plant at South Bend with a still larger addition to be erected in the spring, it is announced. The Bendix plant has a length of two city blocks and its width of 100 feet will be doubled when the new enlargements are completed. Steady growth of business has made the extensions necessary. Where 2,000 sets of Bendix mechanical 4-wheel brakes taxed the capacity of the plant a little more than a year ago the schedule now runs 4,000, with indications, Bendix officials say, that this mark will be passed within 90 more days. When the additions are completed the present force of 500 men will be materially increased.

Vincent Bendix, president of the organization, also announces plans to erect a branch factory in England this spring to supply the British trade.

Facts About the Shop Equipment Shows

On this page appears a list of cities where segregated shop equipment exhibits will be featured during automobile shows, along with dates of these particular shows and the names of manufacturers whose time-saving and profit-making shop devices will be displayed and demonstrated. Jobbers also are listed in cases where they sponsor the equipment section. One such section was a feature of the national show in New York. Several of the shows represented in the list herewith presented are now in progress while the others are to come later.

PHILADELPHIA

Jan. 15-22—W. H. Metcalf, Manager. Exhibit occupies 5000 square feet. Jobbers exhibiting: Berrodin Auto Supply Co., Cahall Motor Supply Co., Casanave Motor Supply Co., Gaul, Derr & Shearer Co., J. H. McCullough & Son, George W. Nock Co., Philadelphia Motor Accessories Co., H. C. Roberts Electric Supply Co. and Supplee-Biddle Hardware Co. Manufacturers whose products will be demonstrated: Curtis Pneumatic Machinery Co., Manley Mfg. Co., Black & Decker Mfg. Co., Weaver Mfg. Co., Walker Mfg. Co., Automotive Maintenance Machinery Co., Storm Mfg. Co., Hardie Mfg. Co., Hinckley-Myers Co., David Lupton's Sons Co., Hayes Pump & Planter Co., Brunner Mfg. Co., Kellogg Mfg. Co., U. S. Air Compressor Co., Van Dorn Electric Tool Co., Hutto Engineering Co., General Equipment Corp., Allen Electric Co., Hempy-Cooper Co., Dearborn Equipment Co., Burton & Rogers Mfg. Co., Larkin Auto Parts Co., Charles P. Rodgers Co., Marquette Mfg. Co., Forest Electric Co., Westinghouse Electric & Mfg. Co., Weidenhoff Products, Stevens Walden-Worcester, Inc., Cincinnati Electric Tool Co., Albertson & Co., Yellow Jack-It Mfg. Co., Franklin Air Compressor Works, Bean Spray Pump Co., Utica Compressor Co., and Friend Mfg. Co.

CINCINNATI

Jan. 15-22—Harry T. Gardner, Manager. Exhibit occupies 500 square feet. Dealer group clinics scheduled. Jobber exhibiting, Pennsylvania Rubber & Supply Co. Manufacturers whose products will be demonstrated: U. S. Air Compressor Co., Manley Mfg. Co., Black & Decker Mfg. Co., General Equipment Corporation, Dearborn Equipment Co., Allen Electric Co., Hempy-Cooper Co., Automotive Maintenance Machinery Co., Hinckley-Myers Co., Hutto Engineering Co., Walker Mfg. Co., Stevens Walden-Worcester, Inc., Forest Electric Co., Albertson & Co., Lyon Metallic Mfg. Co.

BUFFALO

Jan. 15-22—Carlton C. Proctor, Manager. Exhibit occupies 2,000 square feet. Special hours set for trade exclusively. Dealer group clinics scheduled. Jobbers exhibiting: H. D. Taylor Co., Jos. Strauss Co. and Bergman Hardware Co. Manufacturers whose products will be demonstrated: Hayes Pump & Planter Co., Lyon Metallic Mfg. Co., David Lupton's Sons Co., Hinckley-Myers Co., Weaver Mfg. Co., Black & Decker Mfg. Co., Manley Mfg. Co., Automotive Maintenance Machinery Co., Brunner Mfg. Co., Van Dorn Electrical Tool Co., Hutto Engineering Co., General Equipment Corporation, Burton & Rogers Co., Fleming Machine Co., Marquette Mfg. Co., Albertson & Co., and Stevens Walden-Worcester, Inc.

MILWAUKEE

Jan. 15-22—Bart J. Ruddle, Manager. Jobbers exhibiting: Shadboldt & Boyd Iron Co., Andrae Auto Supply Co., and Tisch Auto Supply Co. Manufacturers whose products will be demonstrated (list incomplete at this time): Simplicity Mfg. Co., Universal Oxygen Co., Milwaukee Air Power Pump Co., National Utilities Corp., Manley Mfg. Co., Weaver Mfg. Co., David Lupton's Sons Co., Curtis Pneumatic Machinery Co., Van Dorn Mfg Co., Badger Mfg. Co., Walker Mfg. Co., Black & Decker Mfg. Co., Automotive Maintenance Machinery Co., Marquette Mfg. Co., Allen Electric Co., Smiths Inventions, Inc., and Dearborn Equipment Co.

DETROIT

Jan. 22-29—H. H. Shuart, Manager. Exhibit occupies 7500 square feet. Tickets issued to trade through jobbers and show manager's office good each day from 10 a. m. to 2 p. m. Dealer group clinics scheduled. Jobbers exhibiting: Automobile Equipment Co., Automobile Supply Co., E. A. Bowman, Inc., Beckley-Ralston Co., Michigan Automotive Supply Co., Grier-Sutherland Co., Watkins & Radcliffe Co., Cumings Bros. and General Sales Co. Manufacturers whose products will be demonstrated: Lupton Mfg. Co., Manley Mfg. Co., Black & Decker Mfg. Co., Ernest Holmes Co., Kellogg Mfg. Co., Van Dorn Electric Tool Co., General Equipment Corp., Allen Electric Co., Hempy-Cooper Co., Dearborn Equipment Co., Hutto Engineering Co., Hardie Mfg. Co., Walker Mfg. Co., Hayes Pump & Planter Co., Weaver Mfg. Co., Brunner Mfg. Co., Hinckley-Myers Co., Marshall Electric Co., Electric Machine Corp., Smith Welding Equipment Corp., Berger Mfg. Co., Westinghouse Electric & Mfg Co., Roth Bros. & Co., Electro Magnetic Tool Co., Forest Electric Co., Hall Mfg. Co., Lyon Metallic Mfg. Co., Quincy Compressor Co., Weidenhoff Products, Yellow Jack-It Mfg. Co., Wright Mfg. Co., National Standard Co., Albertson & Co., and L. S. Starrett Co.

BALTIMORE

Jan. 22-29—J. E. Raine, Manager. Exhibit occupies 3500 square feet. Dealer group clinics and trade attendance hours to be arranged. Jobbers exhibiting: J. R. Hunt & Co., Baltimore Hub Wheel Mfg. Co., R. W. Morse & Son, Holland, Baden & Ramsey, Auto Supply Co. Manufacturers whose products will be exhibited: Hutto Engineering Co., Ernest Holmes Co., U. S. Air Compressor Co., Kellogg Mfg. Co., Weaver Mfg. Co., Automotive Maintenance Machinery Co., Black & Decker Mfg. Co., Manley Mfg. Co., Storm Mfg. Co., Curtis Pneumatic Machinery Co., Walker Mfg. Co., Bonney Forge & Tool Co., Bruner Mfg. Co., Hayes Pump & Planter Co., David Lupton Son's Co., National Standard Co., Forest Electric Co., Binks Spray Equipment Co., Lyon Metallic Mfg. Co., Stevens Walden-Worcester, Inc., Larkin Automotive Parts Co., Weidenhoff Products, Elite Mfg. Co., Bastian-Blessing Co., Albertson & Co., Alvord-Polk Tool Co., and Berger Mfg. Co.

CLEVELAND

Jan. 22-29—Herbert Buckman, Manager. Exhibit occupies 5000 square feet. Dealer group clinics scheduled. Jobber exhibiting, Pennsylvania Rubber & Supply Co., Manufacturers whose products will be demonstrated: Black & Decker Mfg. Co., Hutto Engineering Co., Atuomotive Maintenance Machinery Co., Manley Mfg. Co., General Equipment Corp., Allen Electric Co., Hempy-Cooper Mfg. Co., Dearborn Equipment Co., Walker Mfg. Co., U. S. Air Compressor Co., Forest Electric Co., Lyon Metallic Mfg. Co., Imperial Brass Mfg. Co., Stevens Walden-Worcester, Inc., Wright Mfg. Co., Willis Jones Machinery Co., Burt Sales Co., Bear Mfg. Co., C. A. Shaler & Co., Albertson & Co., and Reliable Parts Mfg. Co.

CHICAGO

Jan. 29-Feb. 5—S. A. Miles Manager. Trade admitted free Monday and Tuesday to 1 p. m., on tickets issued on credentials. Exhibiting manufacturers: Albertson & Co., Asch & Co., Air Scale Co., Hammett Mfg. Co., Au-To Compressor Co., Automotive Maintenance Machinery Co., Black & Decker Mfg. Co., Brunner Mfg. Co., Carborundum Co., Champion Pneumatic Machinery Co., Curtis Pneumatic Machinery Co., General Equipment Corporation, Hardie Mfg. Co., Hayes Pump & Planter Co., Hinckley-Myers Co., Hutto Engineering Co., Kehawke Mfg. Co., Kellogg Mfg. Co., Kent-Moore Organization, Manley Mfg. Co., Marshall Electric Co., Pacific Rim Tool Co., Roth Bros. & Co., Safety Vulcanizer Co., Shoemaker Automotive Equipment Co., Snap-on Wrench Co., South Bend Lathe Works, Stevens

(*Continued on page* 35)

The READERS CLEARING HOUSE

Questions And Answers — On Dealers Problems

Radiator or Ignition May Be at Fault

Q.—We have a 1920 Dodge Brothers car that has had the cylinders honed out to .011 in. oversize. Alloy pistons were fitted with a clearance of .002 in. These had Economy oil rings. The trouble is that the engine heats up very badly so we replaced these pistons with others of another make that had .004 in. clearance. This caused the engine to pull better but the heating continued. Thinking the heat was caused by the aluminum pistons I replaced them a third time. This time we used cast iron, allowing .003 in. clearance, but it still continued to heat. Cylinders were checked with a dial gage and are in perfect condition. We have tried various kinds of oil, have checked valve and spark timing, have checked water circulation by putting a glass tube in the top radiator hose, have cleaned the radiator by putting in 4 lbs. of soda ash in water and boiled this with the radiator covered and engine running for 2 hours. Then we drained and flushed the radiator and filled with clean water. Also tried another radiator which holds about 2 qts. more than the original one, and tried a carburetor from another car. The fan is in good shape and the belt tight. The motor does very well even when hot. Has good power and speed but will boil water in from 5 to 10 miles according to the weather and the road when the car is run betwee 30 and 40 miles an hour. A speed of 20 miles an hour does not seem to heat the car up on a distance of 20 miles, which is about the longest drive I have made since working on the engine. The car has run over 1,000 miles since first putting in new pistons. I have always driven this car myself and never had this trouble before. Have driven as much as 100 miles without stopping on a hot day and not used a cup full of water. At the time of honing no other change was made except to grind the valves and set the tappets at .005 in. Can you suggest any remedy for this trouble?—Chas. Schneider, 113 S. Washington St., Casper, Wyo.

YOU seem to have checked practically all of the possibilities with regard to the overheating but we are going to make a few suggestions which we believe will solve your problem.

We would first suggest that you have the ignition unit checked up by an authorized North East service station. Due to the fact that this unit is designed to give a varying degree of advance and retard according to car speed it is impossible to accurately check this unless proper facilities are at hand. In the event that you cannot conveniently get to a North East service station it would be well to try a similar ignition unit from another car if possible.

The ignition on this car should be set so that the breaker points are just opening when the unit is fully retarded and the piston has not yet reached top dead center of the compression stroke by a matter of 8 deg. as measured on the flywheel.

Fins May Be Loose

At one time the fins on the Dodge radiators were not soldered to the tubes and in the course of a few years an accumulation of dirt and oil might so insulate them that the cooling efficiency of the radiator would be greatly diminished. The cure for this was to remove the radiator and give it a thorough scrubbing or better yet immerse it in a tank of boiling soda water to remove the paint and then clean up the metal with cut muriatic acid and solder the tubes to the fins.

The water in your territory is very hard and it is quite likely that considerable scale has accumulated on the inside of your radiator and in your engine. This can be removed by putting 4 oz. of concentrated hydro-chloric acid into your radiator when it is filled with water, and running the car for the matter of an hour or so with the water nearly boiling.

After cleaning the cooling system with acid the entire solution should be quickly flushed out by removing the lower hose connection and then clear water should be run through. Then kill any acid that might be left behind by thoroughly boiling out the system with soda water. It would also be well to remove the pipe that connects the water pump and the cylinder block to see if there is any obstruction to the flow of water.

Cash In on the Daily Grind

Q.—We have a Ford car that develops a grind apparently in the rear axle when the car is driven between 15 and 25 miles an hour. We recently overhauled this axle completely, putting in all new parts with the exception of the axle shaft and the drive shaft. If you can give us any suggestion as to what this might be we will appreciate it.—Leo Johnson, 941 Bank St., Webster City, Iowa.

WE have known of a number of similar cases where the entire difficulty was due to misalignment between the drive shaft housing and the rear axle housing. You have probably noticed that the threads at the forward end of the rear radius rod are quite long. This is for the purpose of obtaining an adjustment between the axle and drive shaft housings. In checking up this setting it is best to jack up the rear end of the car and remove both wheels and also the outer roller bearings. Then the radius rod should be so adjusted that the axle shafts are perfectly centered in the axle housing, allowing of course for a slight amount of droop due to slight looseness of the shafts in the differential assembly.

One cause of howling is that of a warped ring gear. The equivalent of a warped gear is also caused by any dirt that may get between the ring gear and the left half of the differential case.

We feel that it would be best to first check up on the housing alignment.

Readers' Clearing House Index

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Planning Your New Building

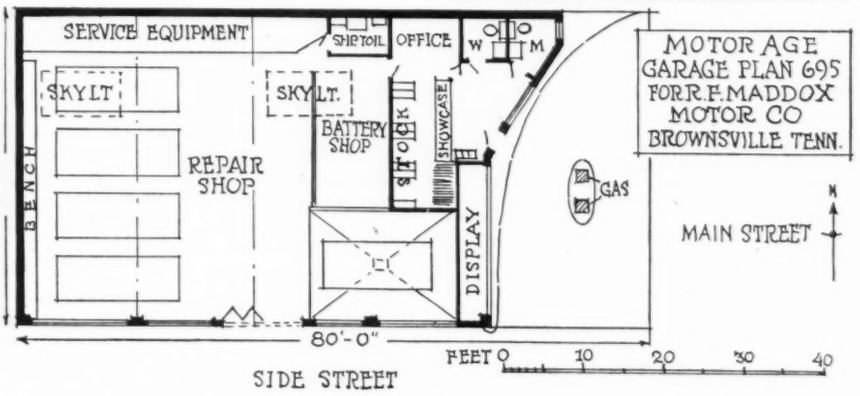
A Corner Lot Always Increases Possibilities

By Tom Wilder

We are thinking of having a garage and filling station built on a lot that we have in view. We are enclosing herewith a rough sketch of this lot and would thank you to draw us a plan. The lot is 40 by 80 ft.

This building would front on the east which is a main street and this is where we would want the filling station and office. We would want just a small office and accessory store, also near this we would want a small stockroom, lavatory for ladies and men, as this building would be on a highway.

We figure we would want a wash rack in the southwest corner with a door to drive on the rack without any interference with other cars. We also think we would want a main entrance on the south side, as this is a side street, and we wonder if we do not need a main entrance on the east end also. We want a drive in filling station on the east. This would have to have a little curve to the east street. On the west and north there are other buildings.—Maddox Motor Co., Brownsville, Tenn.



It is a toss up here whether the bench is along the west wall or the north wall. The repairshop space being almost square either arrangement could be used

THIS plan makes an unusually good arrangement for so small a space. It is not ordinarily possible to put so many departments on a lot 40 by 80 ft. and it would not be possible here unless the lot were on a corner.

While a car entrance to the main street would be very desirable and handy it would be a question of eliminating the office and all the toilet rooms or eliminating something equally important, and we would not consider this for a minute. Another objection to the front entrance would be that it would interfere with the filling station which is already reduced to the minimum size.

You will undoubtedly see why we have not placed the wash rack where you have suggested it as in that position it would break into the only space which it is possible to allot to the repairshop. The filling station is not very large and we would suggest only one pump unless you intend to carry two grades of gasoline. Sometime in the future you may wish to handle cars and if this happens the space occupied by the filling station could be transformed into a show room very easily.

The building would be fairly well lighted but to offset the disadvantage of the two blank walls we would suggest the installation of two skylights as indicated. These would carry light to the back of the room and give a fairly even illumination throughout the building.

The stockroom is not large but if equipped with steel bins properly arranged will store an enormous quantity of parts as well as accessories. The display window is located with the view of creating a desire in the patrons of the gas station for the parts and accessories you have to sell.

If the bench is arranged along the north wall instead of the west as we have shown it, the car entrance should be placed in the center of the south wall between the two trusses, thereby simplifying the support of the truss which is now carried above the doorway.

LEGAL QUESTIONS ANSWERED

By *Wellington Gustin*

LICENSE FOR REBUILT JUNK CAR

Please give me your opinion on the following subject: A sold a car to B as junk. This car was junked by A in February, 1925. C bought the car from B the day after B bought it. The car stood torn down all summer in junk condition. C got parts off other cars and rebuit this car. Can he get rebuilt license for this car under the Iowa laws, without paying a penalty and all of 1925 license. I changed bodies and wheels on this car off other cars. The parts for the engine and differential came from companies, new.—Iowa Reader.

I HAVE found no court decisions or department rulings on the subject. The Iowa statute says the determination of the Department (meaning the Secretary of State) as to the reconstruction or alteration of a car shall be conclusive. So it appears the best procedure would be to make application for registration from date of rebuilding or use giving all the facts by separate letter or affidavit if possible so that the department may have the information on which to make decision on your application.

The statute provides that when a motor vehicle is permanently dismantled and cannot be longer used on a public highway the owner shall detach the license plates and certificate of registration and surrender them to the county treasurer, who shall cancel the registration of record and report such cancellations forthwith upon blanks provided to the Secretary of State.

If this has been complied with then you should have no trouble convincing the department of your claims. However, it appears a decision is left to them as to the matter, and not to court decisions.

YES, IT PAYS TO—

In the December 23, 1926, issue of MOTOR AGE, Dwight F. Mocroft, P.O. Box No. 8, Pinedale, Wyo., asks for a preparation to keep moisture from the windows of closed cars in cold weather. We buy a preparation which sells for 35 cents a box and works fine. We think that the maker of this preparation would increase his business if he would advertise this article in MOTOR AGE.—J. Watts, 7831 Rhodes Ave., Chicago, Ill.

YOU are perfectly right about the advertising in MOTOR AGE. We appreciate having the name of this product and will pass it along to any MOTOR AGE reader who requests it.

Answers to Readers' Questions

Follow the Trail to the End

Q.—What could make a Packard straight eight miss at high speed? I have tested the coil which seems O. K., put in new interrupter points and set them at the proper opening, also tested condenser which is O. K. Then I ground valves, set tappets at .004 and .006 in. clearance, put in all new spark plugs, adjusted carburetor, tested manifold for air leaks and tested vacuum tank. The best results are obtained with the spark retarded, but as soon as spark is advanced it misses badly. Also increased spring tension on breaker points and set spark plugs at .026 in. Could this trouble be a mechanical one?—Frank Ulrich, 519 Second Ave., S. Wausau, Wis.

IT looks as if you carried your testing just about to the point of locating the trouble and then quit. If you are certain that the engine hits perfectly with retarded spark and misses with advanced spark it is evident that the trouble is electrical. Possibly the ignition housing does not make a good connection with the engine. This could be remedied by using a flexible wire to connect between the ignition distributer housing and the frame of the engine. Sometimes oil and grease, when they become old, form an insulating film which prevents the ignition unit having a good ground. A test we would suggest is to run the car with the generator not operating. You can disconnect the generator wire and then ground the generator terminal.

Do not make the mistake of grounding the cutout terminal unless you are careful to block the cutout points in the closed position. With the generator out of the circuit your ammeter will then show ignition current only. With engine running, if you shut off the ignition switch for even an instant you can notice a flicker on the ammeter. We accordingly suggest your running the car under the conditions where missing is experienced and have someone watch the action very closely to see if the ammeter hand flickers at the instant that the ignition misses. If so, it shows trouble in the primary circuit. Another test to make would be to remove a wire from the spark plug and hold it about ⅛ to $\frac{3}{16}$ in. from the frame of the engine and listen to the spark, using a roll of brown paper. One end of the paper rolled is held to your ear and the other near the spark.

You can then race the engine at the speeds corresponding to the ones at which missing occurs. By listening you can tell whether the spark misses or not. You could of course test more accurately by using a test bench. Still another possibility is that the rubber on the spark plug wires is old and cracked and lets the spark jump to the engine or to the wrong cylinder when the ignition unit is turned a certain way as would be caused by advancing the spark.

WATCH THE LUBRICATION

Q.—I have a 1924 Tudor Ford sedan equipped with a special battery ignition system. I am planning on installing a counter-balanced crankshaft and light weight pistons. I also figure on removing the magnets from the flywheel. Would this give a better running engine or would it make the flywheel too light? —Owen Kreaseman, 2117 N. 12th St., Sheboygan, Wis.

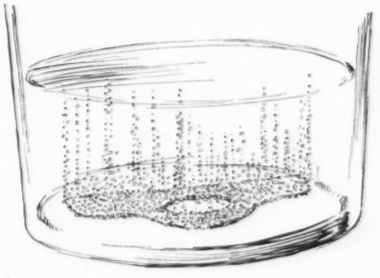
REMOVING the magnets is satisfactory, but you should install an auxiliary oiling system as one of the functions of the magnets is to splash oil which falls into the funnel shaped opening of the oil pipe. If this car does not already have one of the new pipes with very large funnel it would be desirable to install this pipe. There are a number of auxiliary oiling devices on the market which take oil at the magneto terminal post and feed it into the breather pipe or else into the crankcase between the No. 1 and No. 2 connecting rods. One such device also includes a filter.

SHOP KINKS IDEAS

That have been Found Useful

THINNING SHIM WITH ACID

On main and connecting rod bearings where thick steel shims are used and there are no thin shims it is possible to remove a thousandth or two by putting the shim in sulphuric acid for a moment, then washing in water. This does not hurt the shim and it is better than filing, for it leaves it even and smooth.—Lee Gage, Gage Garage, Westboro, Mo.



Readers of MOTOR AGE *are invited to submit ideas that they have found useful in doing some particular service job in the shop in a better or quicker way. For each one published $2.00 will be paid. Whenever possible the idea should be accompanied by a sketch or diagram from which a drawing can be made.*

Compression, Temperature Cause Detonation

Q.—What is the reason for the so called carbon knock that causes detonation on the working parts of an engine? —E. G. Harris, 216 E. Main St., Galesburg, Ill.

DETONATION or knocking caused by fuel is a result of compression and temperature. When part of the fuel has fired, the resulting increase in pressure sometimes causes spontaneous combustion of the balance of the fuel. The abnormal sudden pressure thus produced causes the piston to be driven forcibly against the cylinder wall on account of the angle of the connecting rod. This produces the knock or noise which is characteristic of carbon. The reason that carbon aggravates this condition is that it operates as an insulator and prevents the heat of combustion from being dissipated through the cylinder walls. Another effect is to have a condition of incandescence which tends to ignite the fuel. Pistons with too much clearance of course give a louder knock than would otherwise be attained and the trouble is accordingly classified as piston slap under these circumstances. Detonation also varies with the fuel used.

CHECK THE CHOKE

Q.—We have a 1927 Oldsmobile that is very hard to start. It dies down several times before we can get it going. It has a Carter carburetor. Give directions for adjusting carburetor.—J. W. Woodward, Purvis, Miss.

ONE possibility is that the choke is not properly adjusted and does not fully close. It can be checked by using a piece of paper, to see that the choke valve pinches the paper when the choke handle is all the way out. Then in starting, the throttle should be moved about 1 in. As soon as the engine fires the choke should be moved down gradually. The downward motion of the choke should be continued until the engine runs smoothly and the choke should then be left in this position until the engine warms up. If the choke is pushed in quickly as soon as the engine fires it will cause the trouble you are experiencing.

If you think that the carburetor is not properly adjusted you can check it by turning in the high speed adjustment which is at the bottom of the carburetor until you cannot turn it any further. Then back it off from 1⅛ to 1¼ turns. The idling adjustment which is a small screw just below the flange of the carburetor is adjusted in similar manner, being turned in and then backed off ¾ of a turn.

Clearing Up Electrical Troubles

Edited By A. H. Packer

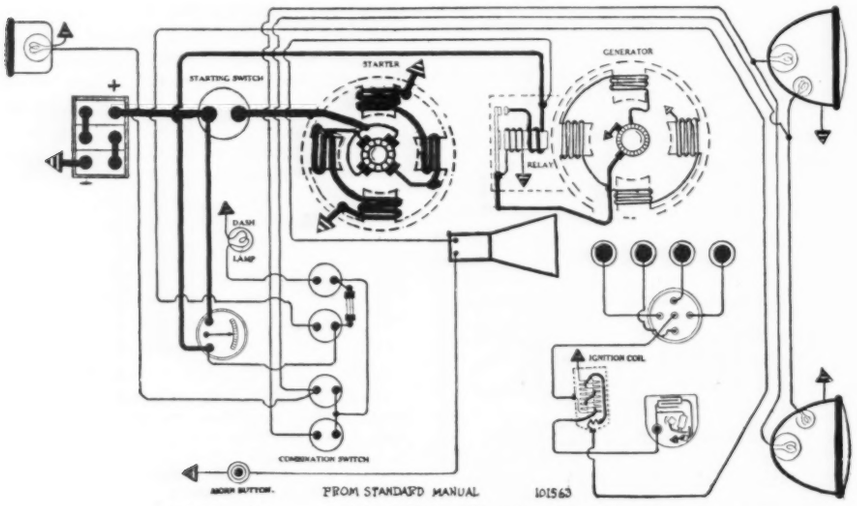
Using Ford Cutout on Maxwell

Q.—Can we use a Ford cutout, switch and ammeter to replace those used on a 1919 model Maxwell and if so how can we connect the generator so that it will charge the battery? The generator is a Simms Huff and the plate on side of generator says 7 volts, 15 amperes, 1060 r.p.m. The generator does not show any charge.—Chas. Heiserman, Heiserman & Claybaugh, Iron Mountain, Mich.

IN 1919 the Maxwell car used a 12 volt generator which had a hexagonal frame and 6 field poles. On this 12 volt generator a 6 volt cutout such as used on the Ford car could not be used. However, as you are fairly definite about the name plate, we assume that this may be a 1920 Maxwell which had the separate generator and starter, these machines being round and having four poles. A wiring diagram of this 1920 car is published. The fact that the generator does not show charge, however, does not indicate that the cutout is at fault. You can easily check this, however, by closing the present cutout points by hand with the engine running and if the machine then shows charge it may be that the cutout is defective.

If you should wish to use a 6 volt cutout such as a Ford type you would connect the generator or G terminal to the insulated main brush. The connection from this brush is shown coming out of the generator and connecting to the cutout in the wiring diagram we are publishing. The B or Bat. terminal of the cutout would be the one on which the wire from the ammeter and the wire from the horn would be connected. It would then be necessary to either mount the cutout on the generator or on some other metal portion of the car such as the engine. If you wish to mount it on a wood dash it would be necessary to run a wire from the base of the cutout to some metal part of the car so as to get a ground connection.

If the cutout is not at fault you can test the generator by closing the cutout points by hand when the engine is not running. You should get a heavy discharge of 15 or 20 amp. If you get only 2 or 3 amperes it shows a main brush is not touching the commutator or the armature is open circuited as would be the case with the solder thrown out, or at some point there is a break in the armature circuit. If you get a heavy discharge you should continue to hold the cutout points together and start up the engine. If the heavy discharge comes up to zero and then the needle keeps on moving and indicates a charging current of 10 or 15 amperes the generator is in fair condition. If the charging current will only come up to about zero even when the engine is speeded up very fast it usually shows a defective armature. If the discharge current stays at 15 or 20 amperes it usually indicates an open field circuit. Should you have a 12 volt machine instead of a 6 volt, that is, one of the old hexagon type, it would be necessary to use a 12 volt cutout. If the machine is still older and used a vibrating regulator on the cowl board it would not be possible to use a simple cutout, unless some special construction should be used to take the place of the regulating feature.



Wiring diagram of first Maxwell using 6 volt system

Corroded Connection That Looked O.K.

Q.—In answer to your letter of October 8th I wish to state that after installing a new ammeter and generator cutout I removed the ground wire from battery to frame, cleaned it, replaced and my trouble was gone. You will recall that the trouble was in excessive flare of the lights on a 1924 Ford car. I had previously inspected the wire and found it tight but evidently it needed cleaning. Thought you would like to know how I made out. Have been in the auto game nine years and learn something every hour. Many thanks for your letter.—Raymond V. Wall, Cobalt, Conn.

IN the MOTOR AGE letter answering the original inquiry we suggested that a voltmeter be used to test the generator voltage and also the battery voltage. A test of this sort is bound to show up trouble due to a corroded terminal or dirty connection. However, we did not specify exactly each test to make. Had you operated the car and had the generator charging the battery and then had taken voltage at the battery and then from the live battery terminal to the frame of the car you would have found the trouble by the difference in the voltmeter reading. For example the battery voltage from post to post might have been 7.5 volts while from the insulated post to the frame of the car it might have been eight volts. Under these circumstances you would have been able to test from the frame of the car to the grounded terminal which is supposed to be bolted securely to the frame and you would have found a half volt difference, which would show up on the meter. Of course there is the possibility that the vibration of the car exaggerates this condition and makes the lights flare considerably and that when you went to test you might not get as much of an indication as would seem likely. In testing the ground connection it often helps to take a voltage reading while the starter is operating as a poor ground connection will normally show up trouble in the starter circuit before it shows up trouble in the generator circuit.

TIMING MADE EASY

Q.—I have found a very easy way of timing either a six or four cylinder engine when the spark plug is hard to remove and it is some trouble to get at the flywheel to watch the marks. I set the ignition rotor in the retard position with the interrupter points just ready to separate when the exhaust valve in the rear cylinder is just closing. The ignition rotor is under the No. 1 distributer segment.—S. E. Archibald, 109 N. 9th St., Olean, N. Y.

Clearing Up Electrical Troubles

Pepping Up Magneto on Ford Car

Q.—Would like to have instructions that would enable me to rig up a device for charging Ford magnetos with engine in car, using current from 32 volt lighting plant battery. Would also like to know how to correctly charge a magneto this way. I have a K. R. Wilson coil and magneto tester for testing the strength of a magneto with engine running.—C. C. Valentine, Ponsford Garage, Ponsford, Minn.

AN ordinary magneto cannot be charged the same as a Ford magneto. For the small magnetos you should get a magnetizer, which will operate on a 6 volt battery.

For recharging the Ford magneto in the car all you need is the 32 volt battery and a magnetic compass.

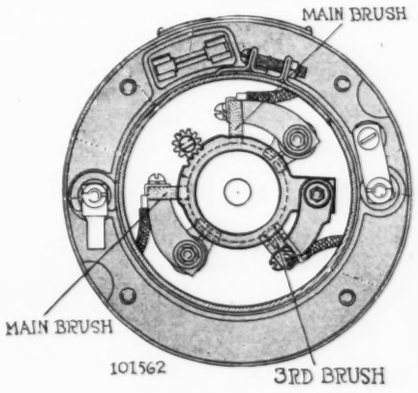
Successful recharging of magnets in a Ford magneto depends primarily on having the engine properly set so that the magnets are properly located with respect to the winding. This requires the use of a compass which should be carefully checked away from all machinery to see which end of it points toward the north. This end will be called the north pole. Now disconnect all wires from the magneto terminal and remove the slanting cover on top of the transmission. It is also well to take out the spark plugs so that the engine can be turned easily without interference from the compression.

Now turn the engine until the brass studs which hold the magnets on and which can be seen at the back of the flywheel by looking through the slanting door opening are so located that one is at the right of the center of the car as much as another is at the left. In other words, two of these brass studs must be straddling the center of the car.

Now take the compass and hold it two inches back of the magneto terminal and 1¾ inches to the left and see if the north end of the needle points toward the radiator of the car. If it points the other way have someone turn the crank so that the flywheel turns the distance of one brass stud. The compass should now point with its north end toward the radiator. Now take either two 12 volt batteries, well charged or four 6 volt batteries and connect them in series, that is, in a string with the plus end of one connected to the minus end of another. A 32 volt farm lighting battery may also be used if one is available. Now connect the positive end of this string of batteries with a heavy wire, the copper part of the wire being ⅛ inch in diameter if possible, to the magneto terminal.

A similar heavy wire should be connected to the negative end of this string of batteries and should be flashed 15 or 20 times against the frame of the car. It is essential that this connection be quickly made and broken as the current is so heavy that the insulation of the coils may be damaged if the connection is left on for any length of time. To do a really good job the starting crank should be turned one-quarter turn and the compass again used to check the flywheel position and the flashing operation repeated.

This should be done at every quarter turn of the flywheel for best results. The advantage of repeating the process every 90 deg. is due to the fact that the iron plate supporting the coils has a certain amount of spring to it so that the magnets at the bottom of the flywheel become slightly more magnetized than those at the top and the process is repeated in order to give all the magnets a chance to become as strong as possible. This process will also burn out any small shorts in the coils.



Brush location on N. E. Dodge Brothers motor generator

DIRECTION OF CHARGING CURRENT

Q.—Does a generator always charge the battery from positive to negative?—W. F. Hackney, Granite City, Ill.

Yes.

Q.—Can the polarity of a battery be changed so that the generator will charge from negative to positive?

No. If this is done it discharges the battery and may cause the plates to build up in the reverse direction. This ruins the plates and necessitates junking the battery. However, it does not make any difference to the battery which terminal is grounded. If the positive terminal is grounded the current comes from the generator through the frame of the car and enters the positive terminal. If the negative terminal is grounded then the current comes from the generator through the car wiring and again comes in at the positive battery terminal.

Brushes Replaced Every 2,500 Miles

Q.—We have a Dodge Brothers motor generator on which the brushes must be renewed about every 2,500 miles. The commutator has been trued up with the bearings. Can you suggest a remedy for this trouble?—Robert Brungart, Rebersburg, Pa.

THE use of the correct brushes is most important and only the brushes supplied by the manufacturer of the unit should be used. There are three brushes in this machine, two of them being yellow in appearance as a result of having a high percentage of copper in them. These are the main brushes. Because of their construction they are capable of carrying the heavy starting motor current and should be installed as shown in the illustration.

The third brush has a very high percentage of carbon and is not capable of carrying the starting motor current and if installed in the main brush holder will cause trouble due to its relatively high resistance. On the other hand the heavy yellow colored brushes will cause trouble if installed in the third brush holder due to their relative low resistance which results in a partial shorting action as the brush passes over the commutator. This action will result in high temperature of the machine which in turn will decrease the brush life. The third brush can be readily recognized because of its black color.

If this suggestion fails to eliminate your trouble it is possible that the armature is incorrectly wound. If your trouble persists it may be worth while to try a new armature.

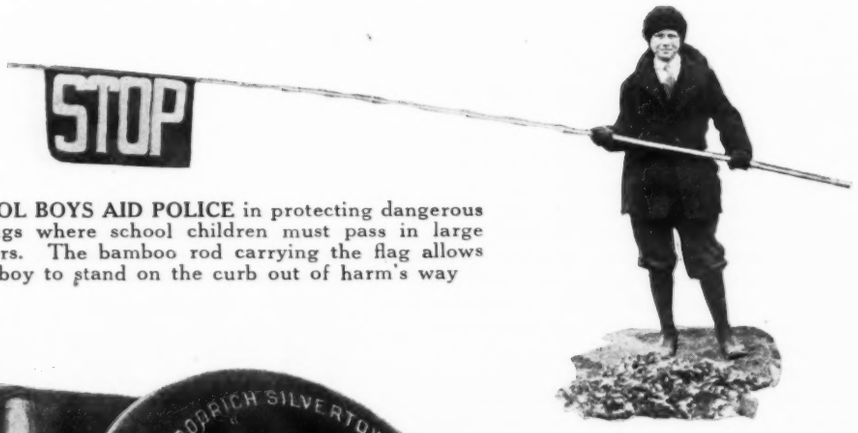
FIGURING THE VOLTS LOST

Q.—If we use six volts or three cells of a 32 volt lighting plant battery for radio A battery, will it give satisfaction if the set is about 100 ft. from the battery? How much voltage lost would we have using heavy copper wire.—Beneke & Wahlgreen, Palmer, Iowa.

No. 10 copper wire has a resistance of 1 ohm for 1,000 ft. Using 2 pieces 100 ft. long to get a connection from the battery would give you 1/5 of an ohm resistance. On a five tube set using ¼ ampere for each tube or 1.25 amperes in all, you would have a voltage loss obtained by multiplying the resistance of 1/5 by the current which is 1.25 amperes which would give you a .25 volt loss. This would accordingly be satisfactory as these tubes operate on 5 volts. If the generator happens to be charging the battery you would have to turn your rheostat down farther than if the generator were not operating.

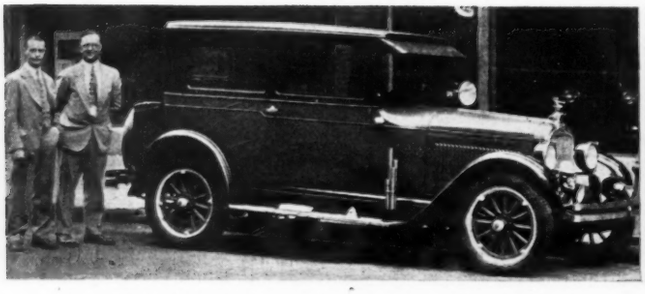
Santa Claus Delivers Cars

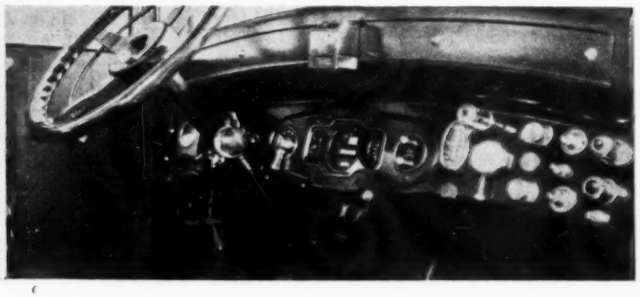
A NOVEL CHRISTMAS PARADE staged by the Igou Motor Co., Moon and Diana dealers in St. Louis. Santa Claus rode at the head of the procession and officiated at the delivery of each of the 13 cars, all of which were Christmas presents



SCHOOL BOYS AID POLICE in protecting dangerous crossings where school children must pass in large numbers. The bamboo rod carrying the flag allows the boy to stand on the curb out of harm's way

THE BIGGEST TIRE IN THE WORLD carried as a spare on a Chevrolet makes the coupe look like the proverbial dog wagged by his tail. It is a real tire, 64 by 14 in., such as is used on Uncle Sam's bombing planes. It will sustain a weight of ten tons with the girl thrown in for good measure





AN ACCESSORY DEALERS PARADISE is this completely equipped Pontiac Six sedan carrying 34 separate and distinct accessories costing $275. This car with its owner, L. V. Grover, Jr., of Lynn, Mass., recently made a visit to the Pontiac dealer in Flint, Michigan. Note the dash completely covered with controls

PLANTS HIT FAIR STRIDE

Car Schedules Slightly Under Pace of Year Ago

Carryover of New Vehicles Is Moderately Greater Than 1926 Stock

NEW YORK, Jan. 18.—Although the record-breaking attendance at the New York automobile show has been accepted as a happy augury for the immediate future in motor car sales, it has yet to be shown that interest of this character has any national significance and a majority of the industry's observers prefer to wait upon actual sales developments in the next few weeks.

First quarter production schedules have been laid out on a fairly liberal basis, but are estimated to be somewhat under those of the same period a year ago. Stocks of new cars carried over from last year by dealers are only moderately greater than the 1926 carryover, the total being well under 400,000. The drastic curtailment in production of the last two months of 1926 materially improved a situation that looked dangerous for a time.

However, the traditional stocking of dealers at this time of year in preparation for the active selling season is likely to be carried out on a very modest scale by most of the factories, the exceptions being those that are getting into production on new lines or new models.

Elcar Signs Dealers

NEW YORK, Jan. 14.—Fourteen new accounts were closed by Elcar Motor Co. of Elkhart, Ind., during show week, according to R. A. Rawson, sales manager. Among these were Fenton Motor Co., Parkersburg, W. Va.; A. E. Kling Motor Co., Asheville, N. C.; Moore Bros., Louisville, Ky.; Elcar Sales Co., Cleveland; and Elcar Sales Corp., Pittsburgh. The latter two are new companies.

Mr. Rawson said that orders were taken for 66 new Elcars on one day of the show, and that 460 inquiries had been received from dealers in the last ten days.

Mr. Rawson announced the appointment of J. M. Phipps as district sales manager in the southeastern district, with headquarters at Charlotte, N. C.

Many at World Motor Congress

NEW YORK, Jan. 14.—The site of the next World Motor Transport Congress remained somewhat undecided as the third Congress closed here Wednesday. Delegates from Great Britain, Germany and one or two other countries expressed the wish that future congresses might come to their countries, but official and formal invitations, upon which official action could be taken, were not presented.

Nearly 150 foreign delegates and visitors attended this third congress held under the auspices of the National Automobile Chamber of Commerce at Hotel Roosevelt, Jan. 10-11. Practically every motor vehicle using country in the world was represented. Important executives of the American automotive industry discussed for the foreign visitors such topics as motor transportation development, highways, trade practices, public relations and automobile financing. Several overseas delegates also presented papers outlining the problems of motor vehicle development in their respective nations.

American executives on the program included, John N. Willys, Edward S. Jordan, R. H. Grant, A. R. Erskine, Charles Clifton, J. Walter Drake, E. G. Wilmer, Cyrus McCormick, Jr., Thos. H. MacDonald, E. T. Strong, W. L. Colt, H. M. Jewett, J. A. Ritchie, H. H. Rice, and R. E. Olds.

Hold N. A. C. C. Annual Banquet

NEW YORK, Jan. 15.—The annual banquet Tuesday of the National Automobile Chamber of Commerce in Hotel Commodore drew the largest attendance in the history of these affairs, and many had to be refused tickets. Roy D. Chapin, chairman of the board, Hudson Motor Car Co., acting as toastmaster, declared that although the industry was going through a period of very keen competition there was never less fear of the bogies of overproduction and saturation.

Automobile factories, Mr. Chapin pointed out, are now organized so that they can turn quickly and without serious disturbance if the market fails to meet expectations. In this sense any year is a good year, he said.

Merle Thorpe, editor of the Nation's Business in the course of a plea to business men not to seek legislation to solve the problems of industry, took occasion to defend installment selling.

Chevrolet Changes

NEW YORK, Jan. 15.—At the Chevrolet banquet in Hotel Commodore this week, Sales Manager R. H. Grant announced that D. E. Ralston, Atlantic Coast regional manager, has been transferred to St. Louis, where he will be regional manager of the middle western section. He will be succeeded by H. L. Horton. It was announced also that George Smith will become sales manager in the New York zone, and will be assisted by R. M. Myers.

The dealers were addressed at the banquet also by W. S. Knudson and C. F. Kettering. Pierre DuPont, chairman of the General Motors board, said that 1927 probably will be the greatest year of opportunity for Chevrolet.

Sales in 1926 by G.M. Dealers Jump 388,770

Year's Retail Movement Is 1,215,826 Units Against 827,056 in 1925

DETROIT, Jan. 17.—General Motors dealer sales to users for 1926 totaled 1,215,826 cars and trucks compared with 827,056 units in 1925, Alfred P. Sloan, Jr., president of the corporation announced in the regular monthly statement on merchandising activities. The increase amounted to 388,770 units. Dealer stocks are reported in favorable shape.

Division sales to dealers for the year totaled 1,234,850. Dealer sales for December were 52,729 compared with 56,129 in December, 1925, and 33,919 in December, 1924. Sales by dealers to users and division sales to dealers by months for the year follow:

Dealers Sales to Users

	1926	1925	1924
January	53,698	25,593	33,574
February	64,971	39,579	50,007
March	106,051	70,594	57,205
April	136,643	97,242	89,583
May	141,651	87,488	84,715
June	117,176	75,864	65,224
July	101,576	65,872	60,836
August	122,305	78,638	54,842
September	118,224	83,519	48,565
October	99,073	86,281	46,003
November	101,729	60,257	33,095
December	52,729	56,129	33,919
	1,215,826	827,056	657,568

Division Sales to Dealers

	1926	1925	1924
January	76,332	30,642	61,398
February	91,313	49,146	78,668
March	113,341	75,527	75,484
April	122,742	85,583	58,600
May	120,979	77,223	45,965
June	111,380	71,088	32,984
July	87,643	57,358	40,563
August	134,231	76,462	48,614
September	138,360	89,018	51,955
October	115,849	96,364	49,552
November	78,550	73,374	23,631
December	44,130	54,117	19,927
	1,234,850	835,902	587,341

These figures include passenger cars and trucks sold in the United States, Dominion of Canada and overseas by the Chevrolet, Pontiac, Oldsmobile, Oakland, Buick and Cadillac manufacturing divisions of General Motors.

Name Bailey Vice President

CHICAGO, Jan. 15.—F. T. Bailey, for many years associated with the Zinke Co., has been elected vice president of this organization, succeeding F. T. Chase, resigned. Mr. Bailey will continue to act as head of the sales department in the northwest territory.

B. E. Dalzell, Pacific coast representative, has been called to the Chicago office to take charge of the automotive division, Frank Kardel of Los Angeles succeeding him on the Pacific coast.

Chevrolet's Used Car Disposal Plan Explained

Grant Gives Details of New Resale Policy at Big Dealer Gathering

NEW YORK, Jan. 15.—Details of the new used car disposal plan were explained to about 1500 Chevrolet dealers, meeting in convention at Mecca Temple Wednesday, by R. H. Grant, general sales manager.

Mr. Grant said that despite the lowered price on Chevrolet cars the dealers' profits actually would be increased by operation of this plan, under which $5 is credited to a dealer in the disposal plan for every new car that he purchases.

When the fund shall have reached the necessary proportions, supplemented by an advance from the corporation, dealers will be permitted to destroy Chevrolet cars received by them which are no longer useful. Cars will be broken up under supervision of a factory representative. It will be required that the cylinder head, motor block, radiator and exhaust manifolds be broken and that the generator and carburetor be knocked off. There will be a flat allowance of $50 each on cars thus destroyed.

The object of the plan, Mr. Grant explained, was not only to take these decrepit old cars off the market but also to eliminate the sale of used parts. When destruction of the car is completed it will be salable only as junk. The dealer will be permitted to retain only the tires and the battery, if these are still useful.

The plan, effective as of Jan. 1, will apply for the present only to Chevrolet cars, but later on, when the fund shall be increased and the number of obsolete Chevrolet cars reduced, other cars also will be destroyed on a flat basis of $35 each.

With Chevrolet's 1927 goal set at 1,000,000 cars, Mr. Grant estimated Chevrolet dealers will have to dispose of 750,000 used cars. He believes the disposal plan will assist in the sale of between 80,000 and 90,000 additional serviceable used cars.

Chevrolet, he said, will launch a huge, co-operative used car merchandising and advertising campaign, in which approximately $800,000 will be expended. Dealers will be urged to recondition and refinish used cars and dependability of the product will be stressed.

R. K. White, sales promotion manager, announced that Chevrolet dealers have made great progress in the preparation of the big recondition job which they will undertake this year.

There are now 2260 Duco refinishing plants operative against only two last year at this time. He said the corporation has instituted a school for teaching dealers' employes how to apply Duco, and also how to duplicate the factory stripe. This service has been supplemented by templates and tools for striping artillery and disk wheels, and paper templates for applying Duco striping to bodies.

J. P. Little, in charge of the factory service department, said the company had worked out six special service combinations on a flat rate basis, by which dealers should be able to make money on service. He urged that the dealer advertise and use the flat rate chart provided by the factory.

More Australian Owners

WASHINGTON, Jan. 15.—Automobile registrations in Australia during 1926 increased by 72,854 over 1925, according to a report from Trade Commissioner E. G. Babbitt, Sydney, issued by the U. S. Department of Commerce. Commercial vehicle registrations increased 42 per cent.

Prices Announced at Show

NEW YORK, Jan. 15.—Prices of new models made public at the New York show appear below. Other price announcements were published in the issues of Jan. 6 and Jan. 13:

Buick	
Town Brougham (115)	$1375
Chrysler	
Landau Sedan (50)	885
Special Coupe (60)	1245
Cabriolet (70)	1745
Coupe (70)	1595
Coupe (80)	3095
Sedan (80)	2675
Davis "94"	
5-p. Roadster	1245
3-p. Coupe	1285
Franklin	
Tandem Sport	3190
Convertible Coupe	2900
Stutz AA	
DeLuxe Cabriolet Coupe	3995
Old price	4170
DeLuxe 2-p. Speedster	3345
DeLuxe 4-p. Speedster	3260
DeLuxe Landau Sedan	3470
Standard Landau Sedan	3345

Dealers Greet New President

NEW YORK, Jan. 14.—W. A. Wheeler, new president of Paige-Detroit Motor Car Co., was introduced to a large group of dealers at the luncheon held at Hotel Commodore during show week by H. W. Jewett, retiring president and new chairman of the board. In presenting Mr. Wheeler, Mr. Jewett reviewed the history of the company and outlined its plans under the reorganization for the coming year.

H. Krohn, vice president in charge of sales, declared that Paige would introduce no new models between now and August.

Sales Manager C. B. Gaunt announced a new course for salesmen, which will be given by mail and will also be presented by direct instruction in New York. In addressing the dealers Mr. Krohn urged them to build up a strong clientele for their own protection. "If an automobile dealer leaves the company without having such a clientele he is without real capital when making a new connection," he said.

Shaler Company Is Sold To Milwaukee Interests

Form New Corporation to Run Business Located at Waupun, Wis.

MILWAUKEE, Wis., Jan. 14.—Milwaukee interests have acquired the entire business of the C. A. Shaler Co., Waupun, Wis., manufacturing vulcanizers and vulcanizing equipment, it was announced today. The purchasers are Phillip H. Door, A. W. Fairchild, William Fleming and others. The transaction is reported to involve more than $1,000,000.

A new corporation, The Shaler Company, has been formed under the laws of Delaware to operate the business.

Mr. Door is president of the Kinite Co., Milwaukee, manufacturer of tool and special steels. Mr. Fairchild is an attorney of Milwaukee, and Mr. Fleming, formerly of Pittsburgh, is secretary-treasurer of the Kinite Co., and has been associated with the A. O. Smith Corp., manufacturer of pressed steel frames, forgings, etc. Active management for the present remains unchanged.

Life Starts Own Business

ST. LOUIS, Jan. 15.—Oliver A. Life, advertising manager for the Moon Motor Car Company for the past four years, has announced his resignation. He will establish his own advertising business in St. Louis Feb. 1. Mr. Life has been engaged in advertising, publicity and sales promotion for 15 years.

Eaton Axle Promotions

CLEVELAND, O., Jan. 15.—Eaton Axle & Spring Co., has appointed H. D. Mixer assistant sales manager of the axle division and B. M. Burns service manager of this division. Both have been with the company for a number of years.

Read This Telegram

New York, Jan. 17, 1927.

Motor Age,
5 S. Wabash Ave.,
Chicago, Ill.

Despite rain Friday and a blizzard Saturday the New York automobile show had over 23,000 more paid admissions than last year and over 19,000 more than the best earlier year.

The attendance on each of the first five days was the best ever recorded. Friday beat last year but Saturday was slightly below previous best Saturday. Weather, of course, caused this decrease.

S. A. MILES, Manager,
National Automobile Shows.

Selling, Management and Maintenance in Forum

Views of Speakers Differ As to Prospects for 1927 Business

NEW YORK, Jan. 14.—At the sales and service meeting of the National Automobile Dealers' Association held at the Hotel Commodore Monday and Tuesday of the National Automobile Show week, divergent opinions as to the prospects of the industry for 1927 were presented. James Dalton, editor, reviewed the economic factors affecting present business conditions and likely to prevail throughout this year, and predicted that sales of automobiles will be from 5 to 10 per cent less in 1927 than in 1926. Harry M. Jewett, chairman of the board of the Paige-Detroit Motor Car Co., gave the opinion that 1927 will be the greatest year in the industry, and that all conditions are favorable for both dealers and manufacturers to sell more automotive products and make more money.

Over 500 Dealers Present

The meeting of the N. A. D. A., which is an annual affair, was well attended, more than 500 dealers having registered. The first day was devoted to discussion of selling and management problems, and the second day to maintenance with special emphasis on the use of good equipment and flat rates as profit makers.

On the maintenance program, William Gow manager of the Studebaker service station at Newark, N. J., told of the results that have been accomplished in his organization through the use of flat rates to customers and piece work compensation to mechanics. Before the adoption of flat rates his organization was employing 64 mechanics, doing a service business volume of $150,000 a year, and servicing less than 20 per cent of the cars sold by the company. Now the whole service organization is being operated with 15 mechanics, does a service business of $250,000 a year and services 77.5 per cent of the cars sold by the company. And the mechanics are making average weekly wages of better than $60 as compared with $35 or $40 under the old plan, and the service department produces a real net profit.

Another speaker at the maintenance session was R. W. Proctor of the Black & Decker Mfg. Co., who cited specific examples of how better equipment has helped service establishments to reach a profitable basis.

On the sales and management program the speakers included Harry M. Fancher, accounting expert; Edward Payton, market analyst; Charles B. Warren, president of the N. A. D. A.; Joseph N. Kellerman, sales manager of Hudson-Frampton Co., St. Louis, and Stanley J. Krebs.

He's Executive Engineer on Olds Staff

John C. Wood

As announced in the Jan. 13 issue of MOTOR AGE, John C. Wood has been appointed executive engineer on the staff of Chief Engineer H. C. M. Stevens, of Olds Motor Works. Mr. Wood, before joining Olds, was president and general manager of the Allied Magnet Wire Corp.

Chrysler Expects Fine Year

NEW YORK, Jan. 15.—Expressing confidence that 1927 will be another fine year for general business and for the automobile industry, Walter P. Chrysler, head of the Chrysler Corp., announced at a meeting of dealers this week at Hotel Commodore that production by the company in 1926 had made a record of 170,477 cars, an increase of 24 per cent over 1925. Exports were 18,143 vehicles, an increase of 58 per cent.

Looking farther into the future, Mr. Chrysler predicted that 1936 will see 35,000,000 cars registered, and 6,000,000 cars sold annually, including export. The meeting, which drew approximately 1,000 Chrysler dealers, was also marked by the presentation of prizes to winning salesmen in the contest just concluded. Speakers besides Mr. Chrysler were J. E. Field, vice-president in charge of sales, and Lee Anderson and Theodore F. MacManus of MacManus, Inc.

Many Car Plants Step Up

NEW YORK, Jan. 15.—Directors of the National Automobile Chamber of Commerce, at a meeting here this week reported that production was being resumed on a large scale at various factories. Confidence was expressed that the market would prove satisfactory and justify heavy productive activity.

Horning Again Elected President of M.&A.M.A.

Sees Trend to More Buying From Parts Maker by Some Car Plants

NEW YORK, Jan. 15.—H. L. Horning, president of the Waukesha Motor Co., re-elected president of the Motor and Accessory Manufacturers' Association at the annual meeting Wednesday, told members that a trend was decidedly in evidence on the part of some car manufacturers to turn to parts makers for items which they have been making themselves. He spoke of several important contracts recently concluded and others in contemplation.

Mr. Horning said that a greater interest had been shown this year by the trade and public in the automobile show and he said this was apparent in the parts, accessory and shop equipment sections as well as in the new cars and trucks. He regarded this as evidence of a good potential market for the products of the industry this year.

Other officers, including M. L. Heminway as general manager, were re-elected. Four directors whose terms expired, were also re-elected, including Mr. Horning, C. M. Wainwright, president of Diamond Chain & Mfg. Co.; A. H. D. Altree, vice-president of American Bosch Magneto Corp., and E. B. Clark, president, Clark Equipment Co. The annual banquet was held in the evening at the Hotel Astor.

Predicts More 4-Wheel Brakes

NEW YORK, Jan. 15.—"Every car with the probable exception of Ford will be equipped with four-wheel brakes inside of the next 18 months," John Willys, president, Willys-Overland, Inc., predicted at his annual luncheon to newspaper men held at the Biltmore Hotel here during show week.

Mr. Willys commented on the possibilities of further mergers in the industry, saying that the survivors among manufacturers will be those who can sell large enough quantities to utilize the capacity of their plants. The Willys-Knight and Whippet lines, he pointed out, combined with the Stearns and the new Falcon-Knight, give the Willys interests products in every competitive price group.

Confidence in the future of the industry was expressed by Mr. Willys, who predicted a good year for both manufacturers and dealers, although he was conservative as regards prophesying new production records.

To Manage Paige Branch

BOSTON, Jan. 15.—Rollan A. Green has been named manager of the New England branch of the Paige-Detroit Motor Co. He has been assistant manager in the Boston office for many years.

Studebaker Makes Many Technical Appointments

Large Number of Additions to Engineering Staff Announced by Corporation

SOUTH BEND, Ind., Jan. 15.—Headed by Delmar G. Roos, as chief engineer, Studebaker has made a number of recent additions to its engineering staff in connection with concentration of practically all such activities in the laboratory and proving ground here. Announcement of the engineering appointments by H. S. Vance, vice-president, follows removal of all but a portion of engineering assistance from De-

Delmar G. Roos, Studebaker's chief engineer

troit to South Bend. Mr. Roos, who recently was chief engineer for Marmon, has long been identified with automotive technical effort, going to Marmon from Locomobile where he was vice-president in charge of engineering and being previously associated with Pierce-Arrow, Timken, once before with Locomobile and in his early days with General Electric.

William S. James is the new head of research. He is an expert on motor fuels, having served as chief of the Automotive Power Plant section of the Bureau of Standards in addition to accomplishing much other important research work. Now on the research staff also are John A. C. Warner, Robert F. Kohr, T. S. Sligh, Jr., Stanwood W. Sparrow, and Maurice A. Thorne—all having been associated more or less recently with the Bureau of Standards and each having to his credit wide experience elsewhere.

Dr. E. C. Newcomb, coming from the Massachusetts Institute of Technology, is technical advisor to the corporation's president, while acting also in a consulting capacity is J. I. Muncy, who long has been associated with Studebaker designing and experimental work.

Ralph De Palma, race driver and race car builder, is an important member of the staff as is K. M. Wise, who is in charge in chassis design. Mr. Wise has had long previous association with Studebaker, but put in the last year with the Olds Motor Works.

Leon A. Chaminade, is the executive engineer in charge of the Erskine Six division. He has been with the corporation more than 10 years. J. H. Bourgon is chief body engineer, Charles W. Link director of body design and Paul E. Breneman assistant chief body engineer. The consulting engineer on body design is R. H. Dietrich, president of Dietrich, Inc. Karl Herrman will maintain contact with service and production problems.

EVENTS AND HIGH SPOTS OF THE NATIONAL SHOW IN CHICAGO

National Show at Chicago
Jan. 29-Feb. 5
Coliseum

Opens Saturday, Jan. 29.... 2:00 P.M.
Show not open Sunday, Jan. 30.
Opens Jan. 31-Feb. 5.....10:00 A.M.
Shop Equipment Section open daily to Trade exclusively from .... 10:00 A.M. to 3:00 P.M.
Trade Days—Monday, Jan. 31 and Tuesday, Feb. 1. Show open to Trade exclusively between .... 10:00 A.M. to 1:00 P.M.

THURSDAY, JAN. 27

Chicago Automobile Trade Association, Pre-Show Meeting and Banquet, Congress Hotel ..... 6:30 P.M.

SATURDAY, JAN. 29

Annual Chicago Salon, continuing through Feb. 5, Drake Hotel.
Elcar Motor Company, first of series of daily Sales Meetings, Palmer House .....Morning
Hupp Motor Car Corporation, first of daily lunch eons, Blackstone Hotel.. 1:00 P.M.
Rickenbacker Motor Company, first of daily Dealer Meetings, Blackstone Hotel .....Morning

MONDAY, JAN. 31

National Automobile Dealers Association, Annual Meeting Board of Directors, La Salle Hotel..10:00 A.M.

TUESDAY, FEB. 1

Moon Motor Car Company, Annual Moon Banquet, Congress Hotel ..... 1:00 P.M.
National Automobile Dealers Association, Annual Convention, La Salle Hotel, opens..... 1:30 P.M.
Oakland Motor Car Company, Luncheon, Palmer House .....Noon
Packard Motor Car Company, All-Day Zone Meeting for Dealers and Distributors, Blackstone Hotel.

WEDNESDAY, FEB. 2

Auburn Automobile Company, Luncheon and Meeting, Blackstone Hotel .....Noon
Franklin Automobile Company, Dealer Luncheon, Drake Hotel.. 1:00 P.M.
National Automobile Dealers Association, Convention, La Salle Hotel. Starts .....10:00 A.M.
N. A. D. A. Banquet and **Trade Frolic, La Salle Hotel, Grand Ball Room 6:30 P.M.**
Olds Motor Works, Dealers' Business Meeting, at Chicago Branch..... 2:00 P.M.
Olds Western Dealers' **Dinner, Congress Hotel..Evening**
Packard Motor Car Company, All-Day Zone Meeting for Dealers and Distributors, Blackstone Hotel.
Velie Motors Corporation, Luncheon, Congress Hotel ..... 1:00 P.M.

THURSDAY, FEB. 3

Nash Sales Company, Chicago. Luncheon for dealers of Indiana, Iowa and Illinois, Congress Hotel .....Noon
National Automobile Chamber of Commerce, National Automobile Dealers Association and Motor and Accessory Manufacturers Association—Joint Service and Shop Equipment Program, La Salle Hotel....10:00 A.M.
National Association of Automobile Show and Association Managers, Meeting, Drake Hotel.... 1:00 P.M.
Paige-Detroit Motor Car Company, Luncheon, Blackstone Hotel .....Noon
Studebaker Corporation, Dealers' Banquet, Congress Hotel ..... 6:30 P.M.

FRIDAY, FEB. 4

Chevrolet Motor Company, Dealers' Meeting, Erlanger theater ..... 2:00 P.M.
Annual Chevrolet Banquet, Palmer House..... 7:00 P.M.

Markham Is Service Manager

CLEVELAND, O., Jan. 15.—The Ohio Stutz Co., Cleveland Stutz distributor, has appointed Ronald Markham service manager, succeeding Arthur House. Mr. Markham has had long and important experience in service work in America and in Cuba.

Trube Back in U. S.

ROCHESTER, N. Y., Jan. 15.—R. L. Trube, formerly London branch manager for the North East Electric Co., has returned to this country to assume duty as North East sales representative in the Detroit area. He will have headquarters at 3373 Cass Avenue, Detroit.

Canada-to-Brazil Road Is Proposed in Senate

Cameron Urges Highway Connecting Nations of Two Americas

WASHINGTON, Jan. 15.—Connection of the nations of North and South America by a great highway from Canada to Brazil is provided in a bill introduced in the Senate by Senator Cameron of Arizona, following a conference with President Coolidge. The bill provides for the appointment of a commission composed of the members of the cabinet, the director general of the Pan-American Union and three members to be named by the President, to plan for the highway.

This commission is empowered to select the route for the highway and to determine the cost. The highway is to be known as "The Pan-American Peoples Great Highway" and it is to connect the capitals of 19 countries.

The measure provides that a 200 foot right of way shall be acquired and that the paved highway shall be at least 24 feet wide. Landing fields are to be provided at regular intervals for aircraft and the 200 foot right-of-way is to be kept cleared for emergency landings.

Auburn Dealers Hear Cord

NEW YORK, Jan. 15.—Dealers of the country hold in their hands the destinies of the manufacturers, E. L. Cord, president, Auburn Automobile Co., told the nearly 200 Auburn dealers and distributors who gathered at luncheon at the Hotel Commodore here Wednesday. "There are greater profits to be made in the automobile business in the future than have been made in the past," Mr. Cord added, pointing to the growing replacement market as an important stabilizing element.

Roy Faulkner, vice-president and director of sales, presided at the luncheon.

Bigger Nash Sales Predicted

NEW YORK, Jan. 15.—Before the New York automobile show luncheon of the Warren Nash Corporation, C. W. Nash, president of Nash Motors Co., said he believed that the Nash manufacturing and distributing organizations will be able to produce and sell more automobiles in 1927 than in 1926, although he felt that total production and sales of the industry for the year might be somewhat less than last year. It was Mr. Nash's opinion, however, that business conditions generally are such that there should not be any great recession this year. He told dealers, distributors and salesmen to the number of 800 assembled at the Pennsylvania Hotel how the Nash company is constantly striving to keep its product in quality and style just a little ahead of the other fellows.

The luncheon was given by Charles B. Warren, president of the Warren Nash Corporation, distributor for the New York territory. Among the guests were Nash distributors from Chicago, Washington, Cleveland, Louisville, Kansas City and a number of other cities.

It was revealed by Mr. Warren that in the last year 50 new sales and service buildings have been erected by dealers in his territory to better serve Nash customers. Incidentally the growth of Mr. Warren's business was revealed by E. H. McCarty, general sales manager of Nash. In 1917 Mr. Warren bought 401 cars from the Nash factory and in 1926 he bought 17,014. The Nash production for 1926 was 137,000 cars as compared with 93,000 in 1925.

Palace Likely 1927 Show Place

NEW YORK, Jan. 15.—Despite sale of the Grand Central Palace to Spanish-American interests to be their headquarters in New York, it appears certain that next year's show will be held in the palace. It is the understanding of the show management that the four floors used for exhibition will be still available.

N.A.D.A. Soon Moves Home to Chicago

ST. LOUIS, Jan. 15.—Headquarters of the National Automobile Dealers Association will be moved from St. Louis to Chicago in the latter part of this month. A formal removal notice issued from the present offices in St. Louis says, effective January 25, the new address will be "Thirty-fifth and Michigan Avenue, Chicago." This plan will establish the N. A. D. A. in its new home just before the opening of the Chicago national show and the association's annual convention to be held at the LaSalle Hotel. The new headquarters will be in Chicago's "automobile row."

It is said to be the plan of C. A. Vane, general manager of the N. A. D. A., to transfer to Chicago all present association attaches who care to go. From ten to thirteen young women are employed by the organization, including Miss K. D. Lally, office manager, who has signified her intention of making the move. A statement will be issued shortly to the membership concerning this long contemplated move which officials of the association believe will render it possible to perform more effective services for the trade.

Libby Is Re-elected

NEW YORK, Jan. 14.—At the meeting of the Board of Governors of the Automotive Electric Association held here Monday officers were elected for the coming year. A. D. T. Libby was re-elected president and A. H. Bartsch and George Cole were continued as third vice-president and secretary-treasurer, respectively. D. H. Kelly was elected first vice-president and J. H. McDuffie, second vice-president.

Goodrich Registration Estimate Is 22,273,643

Declare 2,452,772 Vehicles Went Into Discard During 1926

AKRON, O., Jan. 15.—The annual statistical review of the B. F. Goodrich Rubber Co. reveals a total of 22,273,643 motor vehicles registered in the United States during 1926, a gain of 2,044,618 over 1925, when registration was 20,229,025.

The estimated total passenger car and trucks manufactured during the year is put at 4,497,390 in the Goodrich report which it says is an increase of 297,390 over 1925. It estimates that 2,452,772 motor vehicles were discarded or put out of running condition in 1926. The review says:

"The mortality on motor vehicles was 23 per cent higher in 1926, but this does not change to any appreciable extent the average of motor car life, which still runs between 7 and 8 years. This is significant of the high quality that is being maintained by the manufacturers."

While it is noted that "for the first time in history registration fell off in two states," South Dakota and Utah, it is observed that Texas was the seventh state to attain a registration of more than a million. New York is credited with maintaining its leadership with 1,798,091, an increase of 9.8 per cent over 1925. California is given second rank with a greater percentage increase. Ohio goes into third place from fourth in 1925 and Pennsylvania slips from third place in 1925 to fourth in 1926. The report credits Florida with the highest percentage gain—31.5, with Maine next at 22.3 Florida is said to have a motor vehicle for each 2.2 persons, the highest of any state, and comparing with a ratio of 2.4 for California. Based on the 1926 census estimate Goodrich estimates that there is one motor vehicle for every five persons in the country, and " a little better than seven cars to every square mile."

Heads Arbitration Committee

NEW YORK, Jan. 15.—Lee J. Eastman, president of the Packard Motor Co. of New York, was elected chairman of a group of 430 leaders of various trades, which will cooperate with the American Arbitration Association, at a meeting of the association here Wednesday. The committee will seek to develop and improve arbitral facilities for the settlement of disputes within the trades by the trades.

Other automotive men in the movement are B. M. Asch, president of Asch & Co., Inc.; Frank B. Nostrand, district manager Autocar Sales & Service Co., Inc.; N. W. Durnin, secretary Houpert Machine Co.; and A. G. Southworth, Buick Motor Car Co.

Weston Re-elected Head Of Rubber Association

Annual Meeting Precedes Anniversary Dinner in New York

NEW YORK, Jan. 15.—Predictions that the crude rubber market would be stabilized during 1927 and price fluctations narrowed were made by J. C. Weston, president of the Ajax Rubber Co., following his re-election to the presidency of the Rubber Association of America at the annual meeting of that body at Hotel Commodore.

All officers and directors of the association were re-elected with the exception of Chas. B. Seger, president of the U. S. Rubber Co., who declined renomination and who was succeeded as first vice-president by Paul W. Litchfield, president of the Goodyear Tire & Rubber Co.

The annual meeting and luncheon was followed by the anniversary dinner at the Commodore, attended by more than one thousand members of the association and guests. Speakers were James S. McCulloh, president of the New York Telephone Co., Prof. William Starr Meyers, Department of Politics, Princeton University; and Arthur (Bugs) Baer, newspaper writer and humorist.

A. L. Viles, general manager and secretary, also reappointed by the board, in his annual report reviewed recommendations made on spring dating in the sale of tires, pointing out that for the current season it had been suggested solicitation and shipments begin Nov. 15, with price protection to May 15. "This recommendation," reads the report, "represents the maximum, or most libral terms, and some companies did not start shipping until considerably later than Nov. 15."

Show Seasonal Variations

DETROIT, Jan. 15.—According to a study of the flow of cars throughout the world by General Motors there is scarcely any zone of distribution which does not have a more or less distinct seasonal variation in retail demand. It is pointed out that this makes it necessary to have a greater number of cars available for delivery to purchasers at certain periods than in others. The corporation's analysis of retail deliveries in the United States shows an average distribution by months as follows:

Month	Per Cent	Month	Per Cent
January	4.2	July	8.3
February	5.0	August	8.0
March	10.2	September	8.1
April	16.0	October	8.0
May	11.3	November	5.9
June	9.5	December	5.5

General Motors notes, however, that the figures reveal the interesting fact that the automobile business is not so distinctly a seasonal business as many other lines.

New Sales Chief for Franklin

SYRACUSE, Jan. 14.—Fred B. Walker has been appointed general sales manager of the Franklin Automobile Co. The position was created after the resignation of S. E. Ackerman, for 10 years sales manager.

Mr. Walker formerly was assistant general sales manager of Dodge Brothers, Inc. The appointment is effective immediately, and he was present at the Franklin dealers' conference in New York this week.

Mr. Walker's factory experience is supplemented with training as a distributor, in which latter capacity had the Dodge franchise at Tacoma, Wash.

Business Conditions

Department of Commerce Gives View of Current Situation

The dollar volume of business during the first week of January, as seen from check payments, was greater than in either the preceding week or the corresponding week of 1926, says the weekly review of business conditions by the Department of Commerce. Although exports of wheat were smaller than in the preceding week, they were four times as large as a year ago, with wheat-flour exports during the first week of January also showing increases over both periods. Exports of corn were smaller. Production of crude petroleum was larger.

Output of bituminous coal in the last week of December was greater than in either the preceding week or the last week of 1925. Lumber output, however, was smaller while production of beehive coke, although larger than in the preceding week, was smaller than in the last week of 1925. Car-loadings of goods were smaller than in the week ending Chritsmas and smaller also than a year previous.

Wholesale prices continued to decline, while interest rates on time money averaged lower in the first week of January than in either the preceding week or the same week of 1926. Although rates on call money were smaller than in the previous week, they were higher than in the corresponding week of the previous year. Prices of stocks averaged lower than in the previous week but were higher than in the first week of January a year ago. Bond prices continued to average higher, as compared with both periods. Loans and discounts of Federal reserve member banks continued to rise.

To Make New Tractor

CLEVELAND, Jan. 15.—The Cleveland Tractor Co. will go into production on a new tractor shortly and announces that deliveries will be made in March. While details are withheld it is known that the new machine will have a six cylinder engine and 75 drawbar horsepower. It will be known as the "75" and will be the most powerful of the "Cletrac" line.

Minor's Deceit in Buying A Car Limits Recovery

Court Holds Myers Must Account for Damages Suffered by Dealer

WASHINGTON, Jan. 15.—Misrepresentation of age on the part of a minor purchaser of an automobile on a conditional sales contract is sufficient cause to bar a suit by the purchaser upon reaching legal maturity to recover full payment made during the period of non-age, according to a decision handed down by the U. S. Supreme Court. The decision was given in the case of Clarence H. Myers against the Hurley Motor Co., Inc., both of the District of Columbia.

Information before the court showed that Myers at the age of 20 and several months before he became of legal age, but representing himself to be 24, bought a car on a time payment contract, making some payments but defaulting later on and allowing the car to be repossessed.

Upon attaining legal age he filed suit, disaffirming his contract and demanding recovery of the amount paid in, his entire case resting on the argument of infancy at the time of contract.

The court ruled that "it is against natural justice to permit the infant to recover money paid for the property without first compelling him to account for the injury which his deceit has inflicted upon the other person." It was ruled that the amount of damage sustained by the defendant company through reconditioning expense and repairs on the car could be allowed to the company only in abatement or diminution of the plaintiff's claim and that the company could not recover any excess.

Overland Personnel Changes

NEW YORK, Jan. 15.—Many changes in the sales organization of Willys-Overland, Inc., both in the home office and in the field were announced by L. G. Peed, general sales manager.

Leo Longfellow, who has been connected with the sales division of Willys-Overland for a number of years has been named assistant purchasing agent. The car distribution division will be in charge of C. J. Rogers, who has been promoted from chief supervisor. Frank Wiethoff, former branch manager at Pittsburgh becomes head of the new standard accounting system for dealers. Mr. Wiethoff will be assisted in branch accounting by W. S. Moffatt and by H. S. Beebe in dealer development work. H. D. Rue, who has spent several years in various capacities with the Ford Motor Co., is named manager of the Pittsburgh branch.

Douglas M. Herrick, who has been serving as general sales correspondent, has been appointed head of the home office sales statistical division.

Canadian Registrations Rise 100,504 in Year

Total of 828,098 Vehicles Includes 733,764 Passenger Cars

DETROIT, Jan. 15.—A total of 828,098 motor vehicles are in operation in the Dominion of Canada at the beginning of 1927 as compared with 727,594 at the first of 1926, an increase of 100,504. The total includes 733,764 passenger cars, 1503 buses, 84,955 trucks and 7876 motorcycles.

The Provinces of Saskatchewan and Alberta made the largest gains in the Dominion with increases in passenger cars of about 20 per cent. Ontario registered a gain of 10 per cent. Ontario, incidentally, has 387,970 motor vehicles of which 345,000 are passenger cars, 38,570 trucks, 700 buses and 3700 motorcycles. Quebec has 109,820 vehicles including 92,000 passenger cars, 15,350 trucks, 2100 motor cycles and 370 buses. The Yukon has the smallest number of any of the Canadian provinces with a total of 134 motor vehicles.

Facts About the Shop Equipment Shows

(*Continued from page 22*)

Walden-Worcester, Inc., Van Dorn Electric Tool Co., Van Norman Machine Tool Co., W-A Mfg. & Sales Co., Walker & Co., Weaver Mfg. Co., Joseph Weidenhoff, J. H. Williams & Co., Yellow Jack-It Mfg. Co., Speednut Wrench Co., Fleming Machine Co., Imperial Brass Mfg. Co., Simplicity Mfg. Co., Scully Steel & Iron Co., Frank Danielson Mfg. Co., Halstead Specialties Co., Milwaukee Tool & Forge Co., Lipman Pump Works, Bean Spray Pump Co., Hobart Bros., Eager Electric Co.

KANSAS CITY

Feb. 12-19—George A. Bond, Manager. Jobbers exhibiting: The Equipment Co., Faeth Co., Kansas Automobile Supply Co., Peake Auto Supply Co. and Richards & Conover Hardware Co., (Details of space, manufacturers participating, etc., not yet available.)

ST. LOUIS

February 21-26—Robert E. Lee, Manager. Exhibit will occupy 5000 square feet. Dealer group clinics scheduled. Jobbers exhibiting: Fred Campbell Auto Supply Co., St. Louis Iron Store Co., Sligo Iron Store Co., Fleer-Petty Auto Accessories Co., Koochook Co., Beck & Corbitt Iron Co., Campbell Iron Co., Straus Co. Manufacturers whose products will be demonstrated: Walker Mfg. Co., Curtis Penumatic Machinery Co., Storm Mfg. Co., Hardie Mfg. Co., Hinckley-Myers Co., Weaver Mfg. Co., Black & Decker Mfg. Co., Fleming Machine Co., Automotive Maintenance Machinery Co., Manley Mfg. Co., Kellogg Mfg. Co., U. S. Air Compressor Co., Ernest Holmes Co., Van Dorn Electric Tool Co., Hutto Engineering Co., General Equipment Corp., Marquette Mfg. Co., Wright Mfg. Co., Stevens, Walden-Worcester, Inc., Hayes Pump & Planter Mfg. Co., Forest Electric Co., Elmco Electric Machine Co., Hall Mfg. Co., Berger Mfg. Co., Albertson & Co., Eagle Machine Co., L. S. Starrett Co., Shepard Thompson Co., Greenfield Tap & Die Co., Hobart Bros. Co., Smiths Inventions, Inc., Canedy-Otto Mfg. Co., U. S. Electric Drill Co., Modern Welding Co.

LOS ANGELES

Feb. 26-March 8—Burt Roberts, Manager. Exhibit occupies 4000 sq. ft. Jobbers exhibiting: The Banta Co., Chanslor & Lyon Co., E. A. Featherstone, Inc., and Kay Motor Supply Co., Manufacturers whose products will be demonstrated: Weaver Mfg. Co., Black & Decker Mfg. Co., Walker Mfg. Co., Storm Mfg. Co., Manley Mfg. Co., David Lupton's Sons Co., General Equipment Corporation, Automotive Maintenance Machinery Corp., Kellogg Mfg. Co., Lyon Metallic Mfg. Co., Hayes Pump & Planter Co., Hardie Mfg. Co., Albertson & Co., Stevens Walden-Worcester, Inc., Larkin Automotive Products Co., California Compressed Gas Co., Wright & Corson, Petry & Brandt, South Bend Lathe Co., Smiths Inventions, Inc., Electric Machine Corp., Berger Mfg. Co., Weidenhoff Products, Biflex Corp., American Bosch Magneto Corp., Hobart Bros., and Ideal Machinery Co.

BOSTON

March 5-12—Chester I. Campbell, Manager. Exhibit will occupy 2600 square feet. Jobbers exhibiting: Wetmore-Savage Automotive Equipment Co., Linscott Supply Co., John V. Wilson Co., Bigelow & Dowes Co., Ashton-Devere Co., American Motor Equipment Co., Butts & Ordway Co., Post & Lester Co., George Collins Co., Hub Cycle & Auto Supply Co. Manufacturers whose products will be demonstrated: Walker Mfg. Co., Curtis Pneumatic Mfg. Co., Storm Mfg. Co., Auto Compressor Mfg. Co., Bonney Forge & Tool Works, Hardie Mfg. Co., Hinckley-Myers Co., Manley Mfg. Co., Black & Decker Mfg. Co., Automotive Maintenance Machinery Co., Weaver Mfg. Co., Brunner Mfg. Co., Kellogg Mfg. Co., U. S. Air Compressor Co., Ernest Holmes Co., Van Dorn Electric Tool Co., Hutto Engineering Co., General Equipment Corp., Burton & Rogers Co., Fleming Machine Co., National Standard Co., Marquette Mfg. Co., Wright Mfg. Co., Forest Electric Co.

N.A.F.C. Sees Big Score For Time Sales in 1926

Say Last Year Marked a Transition from Defense to Public Acceptance

CHICAGO, Jan. 15.—The chief gain of the year just ended, says a statement by officials of the National Association of Finance Companies, is found in "the transition of installment buying from a defensive position to being accepted in public opinion." The statement embodies a prophesy that "consumer credit" will neither increase nor decrease to any great extent during 1927. Statements of public officials, a recent scientific study of selling by a noted economist and the general realization that installment buying merely means saving for the purchase of goods while the buyer is enjoying them, are given as the principal causes of the change in the popular conception along this line.

Popular acceptance of the installment method is seen by the N. A. F. C. in the many invitations it receives for a speaker to explain the deferred payment business. C. C. Hanch, general manager of the association, has responded to numbers of such calls. At a joint meeting of a number of national organizations in St. Louis recently Mr. Hanch declared that the rapid expansion, prior to 1923, of the installment system followed the general use of the automobile and opened markets to the manufacturers that otherwise would have remained closed.

"Perhaps the most important effect of the installment system," said Mr. Hanch in pointing out comfort and conveniences now available to all classes, "has been the practical obliteration of economic barriers between the rich and those in moderate circumstances. . . . The feeling is that the rich man has not got much on the poor man. Thus, the much frowned upon installment plan has emerged to become a great helper of democracy and a deterrent of socialistic tendencies."

Whipple's "Blow Out" Feb. 9

BINGHAMPTON, N. Y., Jan. 12.—The sixth annual sales convention and "Blow Out" of Whipple's wholesale automotive house will occur on Feb. 9 this year. It is expected that from 1700 to 2000 dealers will attend. An elaborate entertainment is planned.

Neebe with Lincoln Products

CHICAGO, Jan. 15.—Lincoln Products Co., of Chicago, announces appointment of R. W. Neebe as district manager for the territory of Illinois and southern Wisconsin. Mr. Neebe was formerly associated with the Clymer Spot Light Company, covering the same territory.

Coming Motor Events

Automobile Shows

Akron, O.—Feb. 5-12
Goodrich Bldg.

Albany, N. Y.—Feb. 26-March 5
State Armory

Allentown, Pa.—Feb. 28-March 5
Manhattan Auditorium

*Baltimore, Md.—Jan. 22-29
5th Regiment Armory

Bethlehem, Pa.—Feb. 19-26
Colosseum

*Boston, Mass.—March 5-12
Mechanics Bldg.

Brooklyn—Jan. 22-29
Twenty-third Regiment Armory

Camden, N. J.—Feb. 7-12
Convention Hall

*Chicago—Jan. 29-Feb. 5
National Show, Coliseum

Casper, Wyoming—Feb. 21-24

Chattanooga, Tenn.—Feb. 14-19
Memorial Auditorium

Chicago—Jan. 29-Feb. 5
Annual Salon, Hotel Drake

*Cleveland—Jan. 22-29
Public Auditorium

Cumberland, Md.—Jan. 31-Feb. 5
Armory

Deadwood, S. D.—Feb. 21-26
Auditorium

Denver, Colo.—Feb. 14-19
Auditorium

*Detroit—Jan. 22-29
Convention Hall

Des Moines—Feb. 14-19
Coliseum

Elmira, N. Y.—Jan. 24-29
New York State Armory

Fort Wayne, Ind.—Feb. 14-19
Shrine Auditorium

Fort Worth, Texas—March 5-12

Harrisburg, Pa.—Jan. 29-Feb. 5
Emerson Brantingham Bldg.

Hartford, Conn.—Feb. 19-26
State Armory

Hudson, N. Y.—Jan. 25-29
State Armory

Huntington, W. Va.—Feb. 7-12
Vanity Fair Bldg.

Indianapolis—Feb. 14-19
Auto Show Bldg.

*Kansas City, Mo.—Feb. 12-19
American Royal Building

Lancaster, Pa.—Feb. 1-5
Arcade Garage

Lansing, Mich.—Feb. 7-12
Auto Body Co. Bldg.

Los Angeles—Feb. 12-19
Annual Salon, Hotel Biltmore

Los Angeles—Feb. 26-March 8
Washington Park, in four tents

Louisville, Ky.—Feb. 14-19
Jefferson County Armory

*Montreal, Can.—Jan. 22-29
National Motor Show of Eastern Canada, Morgan Bldg.

*Muskegon, Mich.—Feb. 15-19
Armory

Nashville, Tenn.—Jan. 24-29
Hippodrome Bldg.

Newark, N. J.—Jan. 15-22
113th Infantry Armory

Omaha, Neb.—Feb. 21-26
Twenty-second Annual Automobile Show, City Auditorium

Paterson, N. J.—Jan. 31-Feb. 5
Armory

Peoria, Ill.—Feb. 14-19
Armory

Pittsburgh—Feb. 19-26
Motor Square Garden

Portland, Me.—Jan. 31-Feb. 5
Exposition Bldg.

Providence, R. I.—Feb. 5-12
Cranston Street Armory

Quebec, Can.—March 1-8
Drill Hall

Reading, Pa.—Feb. 5-12
Zimmerman Leahy Garage

Rocky Mount, N. C.—April 4-8
Tobacco Warehouse

Rochester—Jan. 24-29
Edgerton Park

Saginaw, Mich.—March 9-12

San Bernardino, Cal.—Feb. 17-27
National Orange Show Bldg.

San Francisco—Jan. 29-Feb. 5
Exposition Auditorium

Scranton, Pa.—Jan. 24-29
Armory

Sheboygan, Wis.—Feb. 14-20
New Eagles Auditorium

Sioux City, Iowa—March 3-6
Auditorium

*Sioux Falls, S. D.—March 2-5

Spokane, Wash.—Feb. 16-19
State Armory

Springfield, Ill.—Feb. 9-12
State Arsenal

Springfield, Mass.—Feb. 28-March 5
Municipal Auditorium

*St. Louis, Mo.—Feb. 21-26
Union Market Bldg.

St. Paul, Minn.—Feb. 5-12
Twin Cities Show

Syracuse—Feb. 7-12
State Armory

Toledo—Feb. 7-12
Civic Center Garage

Trenton, N. J.—Feb. 16-19

Troy, N. Y.—Jan. 22-29
State Armory

Washington, D. C.—Jan. 29-Feb. 5

Waterbury, Conn.—Jan. 24-29
State Armory

Worcester, Mass.—Feb. 10-12

Wichita, Kans.—Feb. 22-25
Exposition Bldg.

Wilkes-Barre, Pa.—Jan. 31-Feb. 5
Matheson Exposition Bldg.

*Williamsport, Pa.—Jan. 24-29
Susquehanna Trail Garage

Races

A. A. A.

Altoona, Pa.—June 11
Altoona, Pa.—Sept. 5
Atlantic City—April 30
Atlantic City—Sept. 24
Charlotte, N. C.—May 9
Charlotte, N. C.—Nov. 11
Detroit—Sept. 10
Fresno, Cal.—April 21
Indianapolis—May 30
Los Angeles—Feb. 22
Los Angeles—April 10
Los Angeles—Nov. 27
Salem, N. H.—June 25
Salem, N. H.—Oct. 12
Syracuse, N. Y.—Aug. 27 or Sept. 3

Conventions

Automotive Service Association of New York, banquet, Hotel Astor.—Feb. 17

Michigan Automotive Trade Association, Book-Cadillac, Detroit—Jan. 26

North Carolina Automotive Trades Association, Asheville, N. C.—March 14-15

National Automotive Parts Association, Book-Cadillac, Detroit—Jan. 27-28

S. A. E.

Detroit, Jan. 25-28—Annual Meeting.

Detroit, Jan. 28—Carnival.

French Lick Spring, Ind., May 25-28—Summer Meeting.

*Will have special shop equipment exhibit.

COMING FEATURE ISSUES OF CHILTON CLASS JOURNAL PUBLICATIONS

January 27—Motor Age—Chicago Show Issue

February 19—Automotive Industries—Ninth Annual Statistical Issue

Declare Time Plan Sound

WASHINGTON, Jan. 15.—The installment plan of selling automobiles is declared to be a sound business policy in a statement issued by the automotive division of the U. S. Department of Commerce.

The division finds the industry in a condition of stability and finds indications that 1927 will be a prosperous year. It finds nothing alarming in the 5 per cent production increase in 1926 and states there is no evidence of over production or overstocking as a general rule.

Distribute Franklin

SAN FRANCISCO, Jan. 15.—A new distributing agency for Franklin has been established at Washington street and Van Ness avenue by G. A. Boyer, of San Francisco, and J. G. Tennant, of Seattle, under the firm name of the Boyer-Tennant Motor Company.

Yosemite Run Jan. 21

SAN FRANCISCO, Jan. 15.—The Yosemite Valley Economy Run will be held Jan. 21, this year, with more than 200 cars entered at this writing. This is the first annual midwinter run of San Francisco dealers into the celebrated valley. This year, for the first time, a paved highway completely free of snow extends into this part of the high Sierras.

American Electric Truck Specifications

MAKE AND MODEL	Tons Capacity	Chassis Price Without Battery	Wheel Base (Ins.)	TIRES, TYPE AND SIZE		MOTORS				CONTROLLER		DRIVE				Distance from Ground to Top of Frame at Dash (Ins.)	SPEED (M.P.H.)	
				Front (Ins.)	Rear, (Ins.)	Location	Make	Number	Total Horse Power	Location	Number of Forward Speeds	First Reduction	Final Drive	Total Gear Reduction	Type of Axle or Jackshaft		Loaded	Light
C-T Electric....H-1	½	.....	108	S-36x3½	S-36x4	Unit with R A..	G E....	2	3½	Steer C....	4	Spur...	Spur...	11.5	Flo.....	33¼	13	14
C-T Electric....H1-5	¾	.....	116	S-36x3½	S-36x4	Unit with R A..	G E....	2	3½	Steer C....	4	Spur...	Spur...	11.5	Flo.....	33	13	14
C-T Electric....F1-5	¾	.....	94	S-36x3½	S-36x4	Unit with R A..	G E....	2	3½	Steer C....	4	Spur...	Spur...	11.5	Flo.....	32¾	13	14
C-T Electric.....F2	1	.....	96	S-36x3½	S-36x5	Unit with R A..	G E....	2	3½	Steer C....	4	Spur...	Spur...	11.5	Flo.....	32½	12	14
C-T Electric....H-2	1	.....	124	S-36x3½	S-36x5	Unit with R A..	G E....	2	3½	Steer C....	4	Spur...	Spur...	11.5	Flo.....	33	12	14
C-T Electric.....F-4	2	.....	116	S-36x4	S-36x4d	Unit with R A..	G E....	2	5	Steer C....	4	Spur...	Spur...	12.1	Flo.....	35¼	10	12
C-T Electric.....F-6	3	.....	127½	S-36x4	S-36x5d	Unit with R A..	G E....	2	5	Steer C....	4	Spur...	Spur...	12.1	Flo.....	36	9	11
C-T Electric.....F-7	3½	.....	136	S-36x5	S-36x5d	Unit with R A..	G E....	2	7	Steer C....	4	Spur...	Spur...	17.5	Flo.....	36½	9	11
C-T Electric.....A-7	3½	.....	122	S-36x6	S-36x4d	On F & R Axles	G E....	4	7	Steer C....	4	Spur...	Spur...	17.3	Dead....	38⅛	9	11
C-T Electric....A-10	5	.....	132	S-36x7	S-36x5d	On F & R Axles	G E....	4	7	Steer C....	4	Spur...	Spur...	20.1	Dead....	38⅝	8	10
C-T Electric....F-10	5	.....	152	S-36x6	S-36x6d	Unit with R A..	G E....	2	7	Steer C....	4	Spur...	Spur...	20.5	Flo.....	37	8	10
C-T Electric....F-14	....	.....	152	S-36x7	S-36x7d	Unit with R A	G E....	2	7	Steer C....	4	Spur...	Spur...	24.5	Flo.....	38	6	8
Electruck.....48	1	2000	112	S-34x4	S-34x5	Sep Unit.....	G E....	2	5.7	Under F....	4	Chain...	Chain...	6.0	Dead....	35	18	
Electruck.....39	2	2500	135	S-34x4	S-34x6	Sep Unit.....	G E....	2	5.7	Under F....	4	Chain...	Chain...	6.0	Dead....	35	18	
Electruck.....27	7½	6000	168	S-36x7	S-40x14	Sep Unit.....	G E....	2	13.6	Under F....	5	Chain...	Chain...	6.0	Dead....	37½	18	
Lansden.....	¾	1000	108	P-29x4½	P-29x4½	On Frame.....	G E....	1	2½	Under F....	4	None...	Bevel...	6.37	¾ Flo....	28	15	Var.
Lansden.....	1½	2000	124	S-36x3½	S-36x5	On Frame.....	G E....	1	3	Under F....	4	None...	Bevel...	6.37	¾ Flo....	34	15	Var.
Lansden.....	2½	2500	133	S-36x4	S-36x4d	On Frame.....	G E....	1	4½	Under F....	5	Bevel...	Spur....	9.75	¾ Flo....	36	14	Var.
Lansden.....	3½	3000	133	S-36x5	S-36x5d	Unit with J S..	G E....	1	6	Under F....	5	Bevel...	R-Cha...	13.0	Flo.....	39	12	Var.
Lansden.....	5½	3500	146	S-36x6	S-36x6d	Unit with J S..	G E....	1	7½	Under F....	5	Bevel...	R-Cha...	14.0	Flo.....	39	10	Var.
*Milburn.....43	½-¾	1585	115	P-32x4-.	P-32x4½	Unit with R A..	G E....	1	4½	Under F....	4	None...	Worm...	10.3	Flo.....		17	19
*Milburn.....40	1¼	1985	128	P-32x4½	P-33x5	Unit with R A	G E....	1	4½	Under F....	4	None...	Worm...	14.1	Flo.....		15	17
O. B.....B	2	2650	107	S-36x4	S-36x3½d	Unit with J S..	G E....	1	.....	Under S....	Var.	S-Cha..	S-Cha..	.....	Dead....		13	15
O. B.....C	3½	3750	135	S-36x5	S-36x4d	Unit with J S..	G E....	1	.....	Under S....	Var.	S-Cha..	R-Cha...	.....	Dead....		10	11
O. B.....D	5	3950	143	S-36x6	S-36x5d	Unit with J S..	G E....	1	.....	Under S....	Var.	S-Cha..	S-Cha..	.....	Dead....		10	11
*Steinmetz.....15	¾	1800	114	P-32x4½	P-32x4½	Unit with R A.	Own....	1	3	Back S.....	4	Bevel...	Spur....	13.4	½ F.....	34	16½	17½
Walker.....18	¾		94	S-34x3½	S-36x4	Unit with R A.	West....	1	.....	Under S....	5	None...	Spur....	14.8	Flo.....	34	Var.	Var.
Walker.....24	1	.....	101	S-34x4	S-36x5	Unit with R A.	West....	1	.....	Under S....	5	None...	Spur....	14.8	Flo.....	34	Var.	Var.
Walker.....10	....	.....	108	S-32x3½	S-32x4	Unit with D S.	G E....	1	...	Under F....	4	None...	Spur....	6.3	½ F.....	27	Var.	Var.
			124	P-30x5	P-30x5													
Walker.....42	2	.....	114	S-36x4	S-36x6	Unit with R A.	West....	1	.....	Under S....	5	None...	Spur....	14.6	Flo.....	35	Var.	Var.
Walker.....60	3½	.....	131	S-36x5	S-40x5d	Unit with R A.	G E....	1	.....	Under S....	5	None...	Spur....	13.8	Flo.....	39	Var.	Var.
Walker.....70	5	.....	141	S-36x6	S-40x6d	Unit with R A.	G E....	1	.....	Under S....	5	None...	Spur....	13.8	Flo.....	39	Var.	Var.
Ward.....A211	½	.....	88	St-32x3	St-32x3½	Unit with D S..	G E**...	1	3	Under F....	4	None...	Worm...	14.6	½	29	Var.	Var.
Ward.....B222	¾	.....	91	S-32x3½	S-32x4	Unit with D S..	G E**...	1	4	Under F....	4	None...	Worm...	14.6	½ F.....	30	Var.	Var.
Ward.....C211	1½	.....	96	S-32x3½	S-34x5	Unit with D S..	G E**...	1	4.2	Under F....	4	None...	Worm...	14.6	½ F.....	31	Var.	Var.
Ward.....E211	2½	.....	108	S-34x4	S-36x6	Unit with D S..	G E**...	1	5	Under F....	4	None...	Worm...	14.6	½ F.....	32	Var.	Var.
Ward.....G211	3½	.....	120	S-36x5	S-36x8	Unit with D S..	G E**...	1	6	Under F....	4	None...	Worm...	17.6	½ F.....	33	Var.	Var.
Ward.....J211	5	.....	136	S-36x6	S-36x10	Unit with D S..	G E**...	1	8	Under F....	5	None...	Worm...	13.0	½ F.....	34½	Var.	Var.
Ward.....M211	7	.....	152	S-36x7	S-36x7d	Unit with D S..	G E**...	1	10	Under F....	5	None...	Worm...	13.0	½ F.....	36	Var.	Var.

ABBREVIATIONS:
*—1926 Specifications.
**—And Westinghouse.
†—Pneumatics optional.
Back S—Back of Seat.
d—Dual.
½ F—Semi-Floating.
¾ Flo—¾ Floating
Flo—Full Floating.
G. E.—General Electric.
On F & R Axles—On Front and Rear Axles.
P—Pneumatic.
R-Cha—Roller Chain.
S—Solid.
S-Cha—Silent Chain.
Sep Unit—Separate Unit.
Steer C—Steering Column.
Under F—Under floor board.
Under S—Under Seat.
Unit with D S—Unit with Drive Shaft.
Unit with J S—Unit with Jackshaft.
Unit with R A—Unit with Rear Axle.
Var—Varies according to make and capacity of battery employed.
West—Westinghouse.

American Electric Car Specifications

MAKE AND MODEL	GENERAL									BATTERY						PERFORMANCE	
	Body Type	Number of Passengers	Price Complete	Price Without Battery	Wheel-base (Ins.)	Tread (Ins.)	Tire Size (Ins.)	Weight Complete (Lbs.)		Make	Model	Price	Voltage	Ampere Hour Capacity	Location	Miles per Charge with Full Load	Speed with Full Load (M.P.H.)
Detroit.....97	Coupe.....	4	$2800	$2500	100	56	32x4	3385		Own.....	Thin Plate...	400	84	153	½UH & ½RC...	80–100	26
Rauch & Lang.....	Taxicab.....	5	2900	2550	112	56	25x5.77	4775		Philco.....	PX.....	.....	.....	180	½UH & ½RC...	60–100	25
Rauch & Lang. B-68	Brougham.....	4	4250	Var.....	102	56	32x4½	4200		Phila.....	PX.....	Var...	95	180	½UH & ½RC...	60–100	25–28
Rauch & Lang. S-6B	Sedan.....	4	5000	Var.....	102	56	32x4½	Var.....		Phila. ‡...	PX.....	Var...	.....	180	½UH & ½RC...	60–100	25–28

MOTOR					CONTROLLER			DRIVE					SPRINGS			
Make	Model	Number	Total Horse Power	Location	Make	Location	Number of Forward Speeds	Type of Final Drive	Type of Rear Axle	Total Reduction (Motor to Wheels)	Propulsion Taken by	Torque Taken by	Type Front	Type Rear	Wheels (Standard Equipment)	MAKE AND MODEL
Roth.....	22–17	1	3	On Frame.....	Own....	Under S...	5	Bevel...	¾ Float.	9.06	Springs....	Springs....	½Ell...	½Ell...	Wood...	Detroit.....97
Gen. Elec.....	1022	1	....	Unit with J.S..	Gen.Elec	Under S...	4	Bevel...	Float...	6.00	Springs....	Springs....	½Ell...	½Ell...	Disk....	Rauch & Lang.....
Own.....	B–68....	1	3½	Under F.....	Own....	Under S...	5	Worm...	¾ Float.	8.60	Springs....	Tor. Arm..	½Ell...	½Ell...	Art.....	Rauch & Lang.....B-68
Own.....	S–66....	1	3½	Under F.....	Own....	Under S...	5	Worm...	¾ Float.	8.60	Springs....	Tor. Arm..	½Ell...	½Ell...	Art.....	Rauch & Lang.....S-6B

ABBREVIATIONS:
Art—Artillery
Var—Varies according to make of battery employed
Gen. Elec.—General Electric
Phila.—Philadelphia
½ Ell—½ Elliptic
¾ Float—¾ Floating
Tor Arm—Torque Arm
Under F—Under Floor
½ U. H. and ½ R. C.—½ under hood and ½ rear compartment
‡—Make optional
Under S—Under Seat
Unit with J. S.—Unit with Jackshaft

Prices and Weights of Current Passenger Car Models

SHIP WT.	PASS.	BODY STYLE.	PRICE
AUBURN			
		"6-66"	
.....	2-p	Roadster	$1,095
.....	5-p	Touring	1,145
3040	5-p	Sport Sedan	1,195
3080	5-p	Sedan	1,295
3040	5-p	Wanderer Se'n	1,345
		"8-77"	
.....	2-p	Roadster	$1,395
.....	5-p	Touring	1,445
3350	5-p	Brougham	1,495
3390	5-p	Sedan	1,695
3390	5-p	Wanderer Se'n	1,745
		"8-88" (129 in. W. B.)	
3180	4-p	Sp. Roadster	$1,995
3200	5-p	Touring	2,045
.....	7-p	Touring	2,295
3380	5-p	Sport Sedan	2,095
3450	5-p	Sedan	2,195
3450	5-p	Wanderer	2,245
		(146 in. W. B.)	
4200	7-p	Sedan	$2,595
BUICK			
		"115"	
2845	2-4-p	Roadster	$1,195
2955	5-p	Touring	1,225
3020	2-4-p	Coupe	1,195
3150	5-p	2d. Sedan	1,195
3110	4-p	Coupe	1,275
3230	5-p	4d. Sedan	1,295
.....	5-p	Town Bro'm	1,375
		"120" (120 in. W. B.)	
3800	4-p	Coupe	$1,465
3670	5-p	2d. Sedan	1,395
3765	5-p	4d. Sedan	1,495
		"128" (128 in. W. B.)	
3570	4-p	Sp. Roadster	$1,495
3635	5-p	Sp. Touring	1,525
3805	4-p	Country Club	1,765
.....	5-p	Coupe	1,850
.....	3-5-p	Conv't Coupe	1,925
3940	5-p	Brough. Sedan	1,925
4025	7-p	Sedan	1,995
CADILLAC			
		"314" Standard Line (132 in. W. B.)	
4170	5-p	Brougham	$2,995
4105	2-p	Coupe	3,100
4190	5-p	Victoria	3,195
4270	5-p	Sedan	3,250
4460	2-p	Sport Coupe	3,500
4590	5-p	Sport Sedan	3,650
		(138 in. W. B.)	
4420	7-p	Sedan	$3,400
4480	7-p	Imperial	3,535
		Custom Built (132 in.)	
4220	2-p	Roadster	$3,350
4300	2-p	Conv't Coupe	3,450
		(138 in. W. B.)	
4285	7-p	Touring	$3,450
4275	5-p	Phaeton	3,450
4705	5-p	Sp. Phaeton	3,975
4465	5-p	Coupe	3,855
4465	5-p	Sedan	3,995
4580	7-p	Suburban	4,125
4615	7-p	Imperial	4,350
CASE		**J. I. C.**	
3290	5-p	Touring	$1,885
3640	5-p	Sedan	2,590
		"Y"	
3950	7-p	Touring	$2,225
CHANDLER Big Six			
3200	2-4-p	Roadster	$1,695
3330	5-p	Touring	1,545
3345	7-p	Touring	1,645
3570	5-p	20th C'y Sedan	1,495
3570	5-p	Met. Sedan	1,595
3485	4-p	Coupe	1,675
3570	5-p	De Luxe Sedan	1,695
3725	7-p	Sedan	1,895
		Standard Six (108½ in. W. B.)	
2475	5-p	Touring	$ 945
2565	5-p	De Luxe Tour.	1,005
2470	2-4-p	Sport R'dster	1,135
2685	5-p	Sedan	995
2620	2-p	Coupe	1,035
2685	5-p	De Luxe Sedan	1,095
2620	2-p	De Luxe Coupe	1,125
		Special Six (115 in. W. B.)	
2890	5-p	Touring	$1,145
2940	5-p	Sport Touring	1,295
2995	2-p	Coupe	1,195
2995	2-p	De Luxe Coupe	1,285
3230	5-p	Sedan	1,295
		"Royal Str. 8"	
.....	.....	Roadster	$2,195
.....	4-p	Coupe	2,195
.....	5-p	Sedan	2,195
.....	7-p	Sedan	2,295

SHIP WT.	PASS.	BODY STYLE.	PRICE
CHEVROLET "V"			
1785	2-p	Roadster	$ 525
1865	5-p	Touring	525
2005	2-p	Utility Coupe	625
2110	5-p	Coach	595
2185	5-p	Sedan	695
.....	2-4p	Cabriolet	715
2185	5-p	Landau Sedan	745
CHRYSLER			
		"50"	
2145	5-p	Touring	$ 750
2025	2-p	Roadster	750
2130	2-4-p	Roadster	795
2230	2-p	Coupe	750
2335	5-p	Coach	780
2410	5-p	Sedan	830
2350	5-p	Landau Sedan	885
		"60"	
2570	5-p	Touring	$1,075
2545	2-p	Roadster	1,145
2605	2-4-p	Roadster	1,175
2720	2-p	Coupe	1,125
.....	3-5-p	Coupe	1,245
2795	5-p	Coach‡	1,145
2835	5-p	Sedan	1,245
		"70"	
2845	2-4-p	Roadster	$1,495
2930	5-p	Phaeton	1,395
2905	5-p	Sp. Phaeton	1,495
.....	4-p	Coupe	1,595
3000	2-4-p	Royal Coupe	1,545
3090	5-p	Brougham	1,525
3150	5-p	Royal Sedan	1,595
2935	2-4-p	Cabriolet	1,745
3160	5-p	Crown Sedan	1,795
		"80" (185½ in.*)	
3925	5-p	Phaeton	$2,495
3805	2-4-p	Roadster	2,595
4220	5-p	Coupe	3,095
.....	5-p	Sedan	2,675
4260	5-p	Sedan	3,095
		(192½ in.*)	
4090	4-p	Coupe	$2,895
4065	2-p	Cabriolet	3,495
		(198½ in.*)	
.....	5-p	Sportif	$4,000
4450	7-p	Sedan	3,295
4260	7-p	Sedan Lim.	3,595
4265	5-p	Town Car	5,495

‡Cloth Upholstery. Leather at extra cost.
*Overall length.

SHIP WT.	PASS.	BODY STYLE.	PRICE
CUNNINGHAM			
		"V-7"	
4500	4-p	Sp. Touring	$6,150
4600	7-p	Touring	6,650
4700	4-p	Coupe	7,600
5000	6-p	Limousine	8,100
DAGMAR		**"6-70"**	
3750	4-p	Roadster	$3,500
3800	4-p	Sp. Tourer	3,500
3700	4-p	Phaeton	3,500
4200	4-p	Petite Coupe	4,500
4200	4-p	Petite Sedan	4,500
4500	4-p	De Luxe Coupe	4,750
4700	5-p	Sedan	4,700
4800	7-p	Sedan	4,750
		"6-60"	
3150	5-p	Touring	$1,785
3100	2-p	Roadster	1,985
3200	4-p	Sp. Touring	1,985
3500	5-p	Sedan	2,445
DAVIS			
		"92-27"	
2915	5-p	Legion. Tour.	$1,395
3000	5-p	Sedan	1,595
3055	5-p	Imperial Sedan	1,795
		"94-27"	
2350	5-p	Roadster	$1,245
2500	5-p	Touring	1,285
2570	5-p	Sedan	1,285
2375	3-p	Coupe	1,285
.....	5-p	Imp. Sedan	1,385
DIANA "St. 8"			
2995	5-p	Roadster	$1,795
2995	5-p	Palm Bch. Rds.	1,995
.....	7-p	Touring	1,995
3170	5-p	DeL. Bro'm	1,995
3275	5-p	De Luxe Sedan	2,195
3160	5-p	Cabriolet	2,095
3640	7-p	Sedan (135 in. W. B.)	2,695
3640	7-p	Berline Sedan	2,895
3640	5-p	Town Car	5,000
DODGE BROTHERS			
2448	2-p	Roadster	$ 795
2541	2-p	Spec'l Roadster	845
2584	5-p	Touring	795
2669	5-p	Spec. Touring	845
2604	2-4-p	Sport Roadster	945
2653	5-p	Sport Touring	880
2658	2-p	Coupe	845
2672	2-p	Spec. Coupe	895
2816	5-p	Sedan	895
2893	5-p	Spec. Sedan	945
2912	5-p	DeL. Sedan	1,075

SHIP WT.	PASS.	BODY STYLE.	PRICE
DU PONT			
		"E"	
3700	4-p	Roadster	$2,800
3850	5-p	Touring	2,800
3850	4-p	Coupe	3,200
4100	5-p	Sedan	3,400
.....	5-p	Conv't. Sedan	3,750
ELCAR			
		"6-70"	
2580	4-p	Lan. Rdster	$1,475
2670	5-p	Brougham	1,295
2750	5-p	Sedan	1,395
		"8-82"	
3320	2-4-p	Land. R'dster	$1,870
3410	5-p	Brougham	1,595
3490	5-p	Sedan	1,790
		"8-90"	
3675	7-p	Touring	$2,265
3620	2-4-p	Land. R'dster	2,295
.....	2-4-p	Roadster	2,315
3710	5-p	Brougham	2,195
3895	5-p	Sedan	2,465
4245	7-p	Sedan	2,765
ERSKINE			
		"6"	
.....	5-p	Tourer	$ 935
.....	2-p	Coupe	935
.....	5-p	Sedan	985
.....	2-4-p	Cust. Coupe	985
ESSEX			
		"Six"	
2260	4-p	Speedster	$ 750
.....	2-p	Speedster	.....
2500	5-p	Coach	695
.....	2-p	Coupe	735
2540	5-p	Sedan 4d.	785
2540	5-p	DeL. Sedan	795
FLINT			
		"Z-18"	
2525	5-p	Coach	$ 960
2580	5-p	DeL. Coach	1,075
		"60"	
2745	4-p	Roadster	$1,360
2750	5-p	Touring	1,260
2885	4-p	Sp. Roadster	1,495
2890	4-p	Coupe R'dster	1,495
3030	5-p	Sedan 4d.	1,495
3010	5-p	Brougham	1,450
		"80" (120 in. W. B.)	
3335	4-p	Roadster	$1,645
3245	5-p	Touring	1,450
3395	4-p	Sp. Touring	1,645
3500	4-p	Coupe	1,850
3625	5-p	Sedan	1,925
		(130 in. W. B.)	
3780	7-p	Sedan	$2,125
FORD			
		"T"	
1655	2-p	Runabout	$ 360
1728	5-p	Touring	380
1860	2-p	Coupe	485
1972	5-p	Tudor Sedan	495
2004	5-p	Fordor Sedan	545
FRANKLIN			
		"11"	
2800	3-p	Sport Road.	$2,690
2845	5-p	Touring	2,635
2965	3-p	Coupe	2,490
3150	3-5-p	Coupe	2,565
3175	5-p	Sedan	2,790
3165	4-p	Victoria	2,740
2330	5-7-p	Sedan	2,840
3230	5-p	Oxford Sedan	2,815
3275	7-p	Limousine	2,940
.....	.....	Collap. Coupe	2,900
.....	.....	Tandem Sport	3,190
GARDNER			
		6B	
.....	5-p	Sedan	$1,695
		"80"	
.....	2-4-p	Roadster	$1,395
3350	5-p	Sedan	1,695
		"90"	
3450	2-4-p	Roadster	$1,995
3690	5-p	Brougham	2,295
3720	5-p	Sedan	2,295
3690	5-p	Victoria	2,295
HERTZ			
		"D-1"	
3587	5-p	Touring	$1,495
3720	5-p	Sedan	1,795
HUDSON			
		"Std. Line"	
3440	5-p	Coach	$1,285
.....	5-p	Sedan	1,385

SHIP WT.	PASS.	BODY STYLE.	PRICE
		"Custom Line"	
3395	7-p	Phaeton	$1,500
.....	.....	Roadster	.....
3560	4-p	Brougham	1,575
3685	7-p	Sedan	1,850
.....	5-p	Sedan	1,750
HUPMOBILE			
		"A-1"	
2620	5-p	Touring	$1,325
.....	2-4-p	Roadster	1,385
2800	5-p	Sedan	1,385
2800	2-4-p	Coupe	1,385
2850	5-p	Brougham	1,385
		"E-3"	
3300	5-p	Touring	$1,945
3360	7-p	Touring	2,045
3355	2-4-p	Roadster	2,045
3465	2-4-p	Coupe	2,345
3515	5-p	Brougham	2,245
3545	5-p	Sedan	2,345
3525	5-p	Victoria	2,345
3360	7-p	Sedan	2,495
3360	7-p	Sedan Lim.	2,595
JORDAN			
		"6"	
.....	4-p	Sport Salon	$1,595
.....	2-p	Playboy	1,595
.....	5-p	Sedan	1,595
		"J-1"	
2915	4-p	Playboy Road.	$1,845
3200	5-p	Sedan	1,945
3200	4-p	Victoria	1,945
3200	2-4-p	Sport. Coupe	2,195
3200	4-p	Cus. Victoria	2,195
3200	5-p	Cus. Sedan	2,195
		Series "AA"	
3470	5-p	Cus. Sedan	$2,495
3470	4-p	Cus. Victoria	2,495
KISSEL			
		"6-55" (124 in. W. B.)	
3030	5-p	Phaeton	$1,685
3160	4-p	Speedster	1,895
.....	4-p	Coupe R'dster	1,895
3300	5-p	Brougham	1,695
.....	5-p	Spec. Bro'm	1,795
3440	5-p	Bro'm Sedan	1,895
.....	5-p	Conv't Bro'm	2,295
		(131 in. W. B.)	
3660	7-p	Touring	$1,785
3225	4-p	Tourster	1,895
.....	5-p	Spec. Bro'm Sedan	2,095
.....	7-p	Sedan	2,295
		"8-65" (125 in W. B.)	
.....	5-p	Phaeton	$1,885
.....	4-p	Speedster	2,095
.....	4-p	Coupe R'dster	2,095
.....	5-p	Brougham	1,895
.....	5-p	Spec. Bro'm	1,995
.....	5-p	Bro'm Sedan	2,095
.....	5-p	Conv't Bro'm	2,495
		(132 in. W. B.)	
.....	7-p	Touring	$1,985
.....	4-p	Tourster	2,095
.....	5-p	Spec. Bro'm Sedan	2,295
.....	7-p	Sedan	2,495
		"8-75" (131 in. W. B.)	
3220	5-p	Phaeton	$2,185
3360	4-p	Speedster	2,295
.....	4-p	Coupe R'dster	2,395
3565	5-p	Brougham	2,195
.....	5-p	Spec. Bro'm	2,295
3760	5-p	Bro'm Sedan	2,395
.....	5-p	Conv't Bro'm	2,795
.....	7-p	Sedan	2,795
		(139 in. W. B.)	
3630	7-p	Touring	2,285
2335	4-p	Tourster	2,395
.....	5-p	Spec. Bro'm Sedan	2,595
3910	5-p	Bro'm Sed. De Luxe	2,985
4080	7-p	Sedan De Luxe	3,495
4125	7-p	Ber. Sed. DeL.	3,585
LINCOLN "8"			
4760	2-p	Sport R'dster	$4,700
4810	7-p	Sport Touring	4,700
4880	4-p	Sport Phaeton	4,700
4610	4-p	Coupe	4,800
4885	4-p	Sedan	5,000
4760	5-p	Sedan	5,100
4890	7-p	Sedan	5,300
4945	7-p	Limousine	5,500
LOCOMOBILE			
		"Jr. 8"	
3035	4-p	Roadster	1,895
3335	5-p	Sedan	1,895
3330	5-p	Brougham	1,895
.....	5-p	Brougham DeL.	2,550
		"8-80"	
.....	51p	Sedan	$2,850

Prices and Weights of Current Passenger Car Models

SHIP WT.	PASS.	BODY STYLE.	PRICE
LOCOMOBILE—Continued			
		"90"	
4475	4-p	Sportif	$5,900
4370	4-p	Roadster	5,900
4680	4-p	Victoria Coupe	6,950
4842	5-p	Victoria Sedan	7,300
4615	7-p	Cabriolet	7,500
4930	7-p	Suburban	7,500
4615	7-p	Brougham	7,500
		"48"	
5030	4-p	Sportif	$7,460
5330	7-p	Touring	7,460
5640	7-p	Touring Lim.	9,500
5600	5-p	Victoria Sed.	10,050
5464	6-p	Brougham	10,040
5868	7-p	Enc. Dr. Lim.	10,050
5624	7-p	Cabriolet	10,300
McFARLAN			
		"TV"	
4000	2-p	Roadster	$5,800
4600	4-p	Sp. Touring	5,600
4900	4-p	Coupe	6,720
5200	4-p	Tour. Sedan	6,720
5200	7-p	Tour. Sedan	6,810
.....	6-p	Sedan	6,720
.....	7-p	Sedan	6,810
.....	7-p	Spec. Sedan	6,810
.....	7-p	Enc. Sedan	7,110
.....	7-p	Sub. Sedan	7,110
5200	7-p	Town Car	9,000
		"Straight 8"	
3400	4-p	Roadster	3,050
3400	5-p	Touring	2,650
3450	7-p	Touring	2,750
3650	5-p	Sedan	3,180
3650	5-p	Sub. Sedan	3,380
3700	7-p	Sedan	3,280
3700	7-p	Sub. Sedan	3,480
3650	4-p	Coupe	3,180
3650	5-p	Coach Brough.	3,180
3750	5-p	Town Car	4,600
MARMON			
		"Little Marmon"	
.....	2-p	Speedster	$1,895
.....	4-p	Speedster	1,965
.....	2-p	Conv't Coupe	1,995
.....	2-p	Coupe	1,895
.....	5-p	Sedan 2d.	1,795
.....	5-p	Sedan 4d.	1,895
.....	4-p	Brougham	1,895
		"E-75"	
4251	2-p	Speedster	$3,485
4256	4-p	Speedster	3,485
4017	5-p	Phaeton	3,485
.....	7-p	Tour. Speedster	3,565
.....	2-p	Coupe R'dster	3,565
4452	5-p	Town Coupe	3,195
4373	2-p	Coupe	3,485
4346	4-p	Victoria	3,485
4525	5-p	Brougham	3,565
4493	5-p	Sedan	3,565
4620	7-p	Sedan	3,640
.....	5-p	Custom Sedan	3,960
4673	7-p	Custom Sedan	4,075
.....	7-p	Custom Lim.	4,175
MOON			
		"6-60"	
2295	3-5-p	Roadster	$ 995
2330	3-5-p	DeL. Roadster	1,095
2340	5-p	Phaeton	995
2420	5-p	Coach	1,045
2520	.....	Std. Brough.	1,145
2575	.....	Cab. Roadster	1,195
2520	.....	Royal Bro'm	1,195
2605	.....	4d. Sedan	1,245
2605	5-p	Royal Sedan	1,295
		Series "A"	
2600	5-p	Roadster	$1,395
2560	5-p	Touring	1,195
2720	5-p	Cab. Roadster	1,595
2710	5-p	DeL. Bro'm	1,395
2560	5-p	DeL. Sedan 4d.	1,545
NASH			
		"Light Six"	
2275	5-p	Touring	$ 865
2310	2-p	Coupe	925
2440	5-p	Sedan	925
2475	5-p	Sedan	995
.....	5-p	De Luxe Sedan	1,085
		"Special Six"	
2900	2-p	Roadster	$1,115
2980	5-p	Touring	1,135
2980	4-p	Roadster	1,225
3030	2-p	Business Coupe	1,165
3150	5-p	Sedan 2d.	1,215
3170	5-p	Sedan	1,315
.....	5-p	Caval. Sed.	1,695
		"Advanced Six" (121 in. W. B.)	
3390	4-p	Roadster	$1,475
3400	5-p	Touring	1,340
3550	5-p	Sedan 2d.	1,425
3650	5-p	Sedan	1,525
		(127 in. W. B.)	
3480	7-p	Touring	$1,490
3640	4-p	Victoria	1,790
3750	5-p	Coupe	1,990
.....	5-p	Amb. Sed.	2,090
3830	7-p	Sedan	2,090

SHIP WT.	PASS.	BODY STYLE.	PRICE
OAKLAND		**"6"**	
2500	5-p	Touring	$1,025
2590	4-p	Sp. Roadster	1,175
2620	5-p	Sp. Phaeton	1,095
2745	5-p	2d. Sedan	1,095
2705	3-p	Landau Coupe	1,125
2855	5-p	4d. Sedan	1,195
2885	5-p	Landau Sedan	1,295
OLDSMOBILE		**"30E"**	
2200	5-p	Touring	$ 875
.....	5-p	DeL. Touring	.....
2317	4-p	DeL. Roadster	975
2400	5-p	DeL. Touring	980
2347	2-p	Coupe	925
2450	5-p	Coach	950
2470	2-p	DeLuxe Coupe	990
2620	5-p	DeLuxe Coach	1,050
2510	5-p	Sedan	1,025
2690	5-p	DeLuxe Sedan	1,125
2705	5-p	Landau	1,190
OVERLAND		**"(4) Whippet"**	
1985	.....	Touring	$ 625
.....	2-p	Roadster	695
2130	2-p	Coupe	625
2075	5-p	Coach	625
.....	5-p	Sedan	725
.....	.....	Landau	755
		"(6) Whippet"	
.....	5-p	Touring	$ 765
.....	2-4-p	Roadster	825
.....	2-p	Coupe	795
.....	5-p	Coach	795
.....	5-p	Sedan	875
.....	5-p	Landau	925
PACKARD		**"6"**	
3545	4-p	Roadster	$2,685
3590	5-p	Phaeton	2,585
3925	4-p	Coupe	2,685
3925	5-p	Sedan	2,585
		(133 in. W. B.)	
3790	7-p	Touring	$2,785
4070	7-p	Sedan	2,785
4015	5-p	Club Sedan	2,725
4130	7-p	Sedan Lim.	2,885
		"8"	
		(136 in. W. B.)	
4110	4-p	Runabout	$3,850
4130	5-p	Phaeton	3,750
4475	4-p	Coupe	4,750
4430	5-p	Sedan	4,750
		(143 in. W. B.)	
4250	7-p	Touring	$3,950
4550	5-p	Club Sedan	4,890
4660	7-p	Sedan	5,000
4700	7-p	Sedan Lim.	5,100
PAIGE		**"6-45"**	
.....	5-p	Touring	$1,150
2660	5-p	Brougham	1,095
.....	.....	Coupe	1,095
2760	5-p	Sedan	1,195
.....	.....	Cabriolet	1,295
		"6-75"	
		(125 in. W. B.)	
3420	7-p	Touring	$1,655
3540	4-p	Cab Roadster	1,995
3550	5-p	Sedan	1,695
3550	4-p	Coupe	1,995
3765	7-p	Sedan	1,995
3805	7-p	Limousine	2,145
		"6-65"	
		(115 in. W. B.)	
.....	4-p	Roadster	$1,495
3215	5-p	Brougham	1,395
3115	5-p	Landau Bro'm	1,395
3280	5-p	Sedan	1,495
		"8-85"	
.....	7-p	Touring	$2,295
.....	5-p	Sedan	2,355
.....	7-p	Sedan	2,655
.....	4-p	Cabriolet	2,655
.....	4-p	Coupe	2,655
.....	7-p	Limousine	2,795
PEERLESS			
		"6-60"	
.....	5-p	Sedan	$1,345
		"6-72"	
		(126½ in. W. B.)	
3625	5-p	Coupe	$2,295
3680	5-p	Sedan	2,395
		(133½ in. W. B.)	
3475	2-4-p	Sp. Roadster	$2,195
3400	.....	Phaeton	1,995
3800	7-p	Sedan	2,595
3825	7-p	Limousine	2,695
3575	5-p	DeLuxe Sedan	2,795
3650	7-p	DeLuxe Sedan	2,995
		"6-80"	
2950	5-p	Phaeton	$1,395
3025	2-4-p	Roadster	1,495
.....	2-4-p	Coupe Roadster	1,565
3120	2-4-p	Coupe	1,565
3100	5-p	Sedan 2d.	1,395
3290	5-p	Std. Sedan	1,595
.....	.....	Sport Sedan	1,795
3140	5-p	DeLuxe Sedan	1,795

SHIP WT.	PASS.	BODY STYLE.	PRICE
		"6-90"	
.....	5-p	Phaeton	$1,695
.....	2-4-p	Sport R'dster	1,695
3260	4-p	Coupe	1,725
.....	4-p	Sedan	1,895
3410	5-p	Sedan	1,895
3460	5-p	Landaulet	1,995
		"8-69"	
		(133½ in. W. B.)	
3850	2-4-p	Roadster	$2,995
.....	7-p	Sedan	3,095
4125	5-p	Sedan	3,495
4200	7-p	Sedan	3,595
4275	5-p	Ber. Limousine	3,795
		(126 in. W. B.)	
.....	5-p	Coupe	$2,795
4050	5-p	Sedan	2,995
PIERCE-ARROW			
		"80"	
3285	2-p	Runabout	$2,895
3300	4-p	Phaeton	3,095
3440	7-p	Phaeton	2,895
3470	5-p	Coach 2d.	2,995
3405	2-p	Coupe	3,100
3525	5-p	Coach 4d.	3,250
3620	7-p	Coach	3,350
3420	4-p	Coupe	3,695
3500	5-p	Sedan	3,395
3600	7-p	Sedan	3,995
3655	7-p	Enc. Dr. Lim.	4,045
3675	7-p	Lim. Coach	3,450
		"36"	
4445	2-p	Runabout	$5,875
4480	4-p	Touring	5,875
4585	7-p	Touring	5,875
4760	3-p	Coupe	6,375
4800	4-p	Sedan	6,375
4760	7-p	Sedan	5,875
4770	4-p	Coupe Sedan	6,375
4840	7-p	Enclosed Lim.	5,875
4840	7-p	French Lim.	7,500
4840	7-p	Enc. Dr. Land.	6,000
4760	7-p	Sedan Landau	6,000
4880	4-p	Lim. Encl.	6,375
4800	4-p	Sedan Landau	6,600
4880	4-p	Encl. Landau	6,600
4740	7-p	French Landau	8,000
PONTIAC		**"Six"**	
2270	2-p	Coupe	$ 825
2335	5-p	2d. Sedan	825
2455	5-p	Landau Sedan	895
2420	2-p	DeLuxe Coupe	895
2565	5-p	DeL. Lan. Sed.	975
REO		**"A"**	
.....	2-p	Roadster	.....
.....	2-p	Coupe	$1,845
.....	4-p	Coupe	1,845
3700	.....	Sedan	1,845
.....	.....	Brougham	1,595
RICKENBACKER			
		"6-70"	
3125	5-p	Sedan	$1,595
3055	.....	Bro'm Vict.	1,645
		"8-80"	
3240	5-p	Sedan	$1,795
3170	.....	Bro'm Vict.	1,845
		"8-90"	
3760	5-p	Sedan	$2,595
3660	.....	Brom. Vict.	2,595
3800	7-p	Sedan	2,695
.....	7-p	Berline	2,795
ROAMER		**"8-78"**	
.....	4-p	Coupe	.....
.....	5-p	Brougham	.....
.....	5-p	Sedan	.....
		"8-88"	
3310	2-p	Roadster	$1,895
3410	2-p	Coupe	1,985
3580	5-p	Sedan	1,985
ROLLS-ROYCE			
Manufacturers do not quote list prices.			
STAR		**"4"**	
1850	2-p	Conv't R'dster	$ 550
1905	5-p	Touring	550
1965	2-p	Coupe	650
2120	5-p	Coach	675
2190	5-p	Sedan 4d.	765
		"6"	
2075	5-p	Touring	$ 725
2160	2-4-p	Sp. Roadster	885
2100	2-p	Coupe	795
2245	5-p	Coach	845
2355	5-p	Sedan	925
2365	5-p	Landau Sedan	975
2150	2-4-p	Sp. Coupe	975
STEARNS-KNIGHT			
		"F 6-85"	
4185	2-p	Roadster	$3,250
4285	4-p	Touring	3,250
4640	2-p	Cab-Roadster	3,550
4290	4-p	Coupe	3,350
4407	5-p	Std. Sedan	3,350
4505	7-p	Sedan	3,550
4650	5-p	Std.Sedan Lim.	3,550
4800	7-p	Sedan Lim.	3,750

SHIP WT.	PASS.	BODY STYLE.	PRICE
		"G-8"	
4235	2-p	Roadster	.....
4325	4-p	Touring	.....
4457	4-p	Coupe	.....
4565	5-p	Sedan	.....
4555	7-p	Sedan	.....
4700	7-p	Limousine	.....
4850	5-p	Sedan Lim.	.....
.....	2-p	Cabriolet	.....
STUDEBAKER			
		Standard Six	
2965	3-p	Du. Roadster	$1,160
3030	3-p	Sport Roadster	1,250
3095	5-p	Du. Phaeton	1,180
3140	3-p	Country Club	1,295
3210	5-p	Coach	1,230
3115	5-p	Sedan	1,330
3235	5-p	Custom Sedan	1,385
3180	4-p	Cus. Victoria	1,335
		Special Six	
3480	2-4-p	Sp. Roadster	$1,630
3495	5-p	Du. Phaeton	1,480
3470	5-p	Coach	1,480
3620	5-p	Brougham	1,830
		Big Six (120 in. W. B.)	
3445	3-p	Du. Roadster	$1,530
3485	2-4-p	Sport Roadster	1,680
3580	5-p	Sport Phaeton	1,610
3510	5-p	Club Coupe	1,480
3705	4-p	Cus. Victoria	1,735
3835	5-p	Custom-Bro'm	1,785
		(127 in. W. B.)	
3720	7-p	Du. Phaeton	$1,810
3910	5-p	Brougham 4d.	2,130
4050	7-p	The President	2,245
STUTZ			
		"AA" (131 in. W. B.)	
4058	2-4-p	Speedster	$3,150
4175	4-p	Speedster	3,160
4334	5-p	Brougham	3,195
4340	5-p	Sedan	3,195
4176	4-p	Vic. Coupe	3,175
4182	2-4-p	Coupe	3,165
.....	5-p	Landau Sed.	3,345
		(145 in. W. B.)	
.....	5-p	Tour. Bro'm	$3,685
4656	7-p	Sedan	3,685
4731	7-p	Sedan Lim.	3,785
		"AA De Luxe" (131 in. W. B.)	
.....	2-p	DeL. Speedst'r	$3,250
.....	4-p	DeL. Speedst'r	3,260
.....	2-p	Coupe	3,265
.....	4-p	Vict. Coupe	3,275
.....	5-p	Brougham	3,320
.....	5-p	Sedan	3,320
.....	5-p	Landau Sed.	3,470
		(145 in. W. B.)	
.....	5-p	Tour. Bro'm	$3,835
.....	7-p	Sedan	3,835
.....	7-p	Sed. Lim.	3,910
		"AA Custom"	
.....	2-p	Coupe	$3,915
.....	4-p	Vict. Coupe	3,925
.....	5-p	Sedan	3,995
.....	2-4-p	Cab. Coupe	3,995
VELIE			
		"Spec. 60"	
3025	5-p	Club Phaeton	$1,450
2908	4-p	Coupe	1,585
3175	5-p	Sedan	1,585
3340	5-p	Royal Sedan	1,585
		"Std. 50" (112 in. W. B.)	
2850	3-p	Coupe	$1,045
2900	5-p	Sedan	1,045
WILLS SAINTE CLAIRE			
		"T-6" (127 in. W. B.)	
3675	5-p	Traveler	$2,700
3580	4-p	Roadster	2,700
3750	4-p	Cab. Coupe	3,350
3900	5-p	Std. Sedan	3,150
3970	7-p	Sedan	3,250
4080	7-p	Limousine	3,350
WILLYS-KNIGHT			
		"66-A"	
3323	2-p	Roadster	$1,950
3395	5-p	Touring	1,850
3566	7-p	Touring	1,950
.....	2-4-p	Cab. Coupe	2,295
.....	4-p	Foursome Sed.	2,295
3686	5-p	Sedan	2,295
3822	7-p	Sedan	2,495
		"70-A"	
2846	5-p	Touring	$1,295
.....	2-4-p	Roadster	1,350
.....	2-p	Coupe	1,295
2853	5-p	Sedan	1,395
.....	2-4-p	Cabriolet	1,395
3050	5-p	Sedan	1,495

Mechanical Specifications of Current Passenger Car Models

This list comprises cars distributed on a national basis

MAKE AND MODEL	Wheel Base (Inches)	Tire Size Decimals-Balloons	ENGINE: Make and Model	Number of Cyls., Bore and Stroke	Rated H.P. N.A.C.C.	Piston Displacement	Valve Arrangement	Camshaft Drive	Piston Material	No. Main Bear.	Crankshaft Vib'n Damper?	ELECTRICAL SYSTEM: Oiling System	Oil Cleaner?	Cooling System	Thermostat?	Radiator Shutters?	Carburetor Make	Air Cleaner?	Ignition System Make	Generator and Starter Make	Clutch—Type and Make	Gear Set—Make	Universals—Type and Make	REAR AXLE: Type and Make	Gear Ratio	BRAKES: Foot—Type and Location	Hand—Type and Location	4-Wheel Type—Optional	Steering Gear—Make	Rear Springs—Type and Length	Chassis Lubrication—Type and Make
Auburn 6-66	120	29x5.25	Cont. 28L	6-27/8x43/4	19.8	185	L	Ch.	CI	4	Y	PK	N	Pu.	N	N	Sch.	N	Remy	Remy	P.Long	War.	m-U-P.	½ Col.	4.9	B-F	E-T	M	Ross	S-56¾	Pr-Al.
Auburn 8-77	125	29x5.25	Lyc. GT	8-23/4x43/4	24.2	226	L	Ch.	CI	5	Y	PK	N	Pu.	N	N	Sch.	N	Remy	Remy	P.Long	War.	m-U-P.	½ Col.	4.7	B-F	E-T	M	Ross	S-56¾	Pr-Al.
Auburn 8-88	129-146	31x6.00	Lyc. 4HM	8-3¼x4½	33.8	299	L	Ch.	Al.	5	N	PC	F	Pu.	Y	N	Sch.	N	Remy	Remy	D.Long	W-G	m-U-P.	½ Col.	4.45	B-F	E-T	M	Ross	S-57	Pr-Dot
Buick 115	114½	31x5.75	Own.	6-3½x4½	23.4	207	I	He.	CI	4	Y	PC	F	Pu.	Y	N	Mar.	Y	D-R	D-R	D.Own	Own	m-Own	¾ Own	4.30	E-F	I-R	M	Jac.	V-48	Pr-Ze.
Buick 120 & 128	120-128	33x6.00	Own.	6-3½x4¾	29.4	274	I	He.	CI	4	Y	PC	F	Pu.	Y	N	Mar.	Y	D-R	D-R	D.Own	Own	m-Own	Fl Own	4.7°	E-F	I-R	M	Jac.	V-47⅝	Pr-Ze.
Cadillac 314	132-138	33x6.75	Own. 314	8-3½x5⅛	31.2	314	L	Ch.	CI	3	N	PK	F	Pu.	Y	Y	Own.	N	D-R	D-R	D.Own	Own	m-Spi	Fl Own	4.91	B-F	I-R	M	Jac.	S-60	Pr-Al.
Case Y	132	34x7.30	Con. 6J	6-3⅝x5	33.7	331	L	He.	CI	4	N	PC	N	Pu.	Y	N	Sch.	N	Delco	Delco	D.Own	Own	f-Sne	¾ Col.	4.45	E-F	E-T	H	Ross	S-57	Pr-Sa.
Case JIC	122	32x6.20	Con. 8R	6-3⅝x4½	27.3	242	L	He.	CI	4	N	PC	N	Pu.	Y	N	Sch.	N	Delco	Delco	D.Own	Own	f-Sne	½ Col.	4.90	E-F	E-T	H	Ross	S-54¾	Pr-Sa.
Chandler Big 6	124	33x6.00	Own. Big 6	6-3½x5	29.4	289	L	Ch.	CI	4	Y	PF	F	Pu.	Y	N	Sch.	Y	D-R	D-R	P.B&B	Own	f-Own	¾ Own	4.45	E-F	E-T	M	Own	S-59¼	Bowen
Chandler Stdd. 6	108½	30x4.75	Own. Stdd 6	6-3x4½	21.6	180	L	Ch.	CI	3	Y	PF	F	Pu.	Y	N	Til.	Y	D-R	D-R	P.B&B	Own	f-Pick	½ Own	4.90	E-F	E-T	M	Gem	S-51	Bowen
Chandler Spec. 6	115	31x5.25	Own. Spe. 6	6-3⅛x4¾	23.4	219	L	Ch.	CI	3	Y	PF	F	Pu.	Y	N	Sch.	Y	D-R	D-R	P.B&B	Own	f-Sne	½ Own	4.90	E-F	E-T	M	CAS	S-54	Bowen
Chandler Royal St. 8		33x6.00	Own.	8-3 x4¾	32.5	303	L		CI	5		PK	F	Pu.	Y	Y	Sch.	Y	D-R	D-R	P.B&B	Own	f-	¾ Own		-F	E-T	M		S-59¼	Bowen
Chevrolet V	103	{30x3½ 29x4.40}	Own. Sup.	4-3⅛x4	21.8	171	I	He.	CI	3		PS	F	Pu.	N	N	Car.	Y	Remy	Remy	P.Own	Own	m-Own	½ Own	3.82	E-R	I-R	N	Own	S-54	Pr-Al.
Chrysler "80"	185-198½‡	30x6.75	Own.	6-3½x5	29.4	288	L	Cb.	Al.	7	Y	PF	Y	Pu.	Y	N	Str.	Y	Remy	Remy	P.G&H	Own	m-U-P	½ Own	4.18 4.64	E-F	E-T	H	Ross	S-58	Pr-Ze Ow
Chrysler "50"	153‡	29x4.75	Own.	4-3⅝x4½	21.0	170	L	He.	Al.	3	N	PC	N	Th.	N	N	Bal.	N	Remy	Remy	P.Roc	Own	f-	½ Own	4.70	E-R	E-T	N	Gem	S-53½	Pr-Ze.
Chrysler "60"	156‡	28x5.25	Own.	6-3x4¼	21.6	180	L	Ch.	Al.	7	Y	PF	F	Pu.	N	N	Str.	Y	Remy	Remy	P.G&H	Own	m-Spi	½ Own	4.6°	E-F	E-T	H	Ross	S-53	Pr-Ze.
Chrysler "70"	162½‡	30x6.00	Own. G	6-3½x4¾	23.4	218	L	Ch.	Al.	7	Y	PF	F	Pu.	Y	N	Bal.	Y	Remy	Remy	P.G&H	Own	m-U-P	½ Own	4.30	E-F	E-T	H	Gem	S-51⅝	Pr-Ze.
Cunningham V-7	132-142	33x6.75	Own. V7	8-3¾x5	45.0	442	L	He.	CI	3	N	PF	N	Pu.	Y	N	Str.	N	Delco	Delco	D.Own	Own	f-Spi	Fl Tim	4.23	I-F	I-F	M	Ross	J-62	Pr-Al.
Dagmar 6-60	120	32x6.20	Lyc. 4S	6-3¼x4½	25.3	224	L	Ch.	CI	4		PC	N	Pu.	N		Sch.	N	Delco	Delco	P.B&B	W-M	m-Spi	½ Sal.	5.10	E-R	E-T	H*	Ross	S-52	Pr-Al.
Dagmar 6-70	138	33x5†	Con. 6J	6-3¾x5	33.8	331	L	He.	CI	4		PC	N	Pu.	N		Sch.	N	Delco	Delco	D.B-L	B-L	m-Spi	½ Tim	4.90	E-R	I-R	N	Gem	S-52	Pr-Al.
Davis 92-27	115	32x6.00	Con. 11U	6-3¼x4⅝	25.3	230	L	Ch.	CI	7	Y	PC	N	Pu.	N	N	Str.	Y	Delco	Delco	P.B&B	W-G	m-Pet	¾ Col	4.90	E-F	E-T	H	Ross	S-52	Pr-Al.
Davis 94-27	109	29x4.95	Con. 20L	6-2⅞x4¾	18.1	169	L	Ch.	Al.	4	Y	PC	N	Pu.	N	N	Til.	N	Delco	Delco	P.B&B	W-G	m-Pet	½ Col	5.37	E-F	E-T	H	Ross	S-51½	Pr-Al.
Diana St. 8	125½	32x6.00	Cont. 12Z	8-3 x4¼	28.8	240	L	Ch.	CI	5	Y	PK	F	Pu.	N	Y	Str.	Y	Delco	Delco	P.B&B	War.	m-Mec	½ Col.	5.10	E-F	E-T	H	Ross	S-54¼	Pr-Al.
Dodge Brothers	116	31x5.25	Own.	4-37/8x41/2	24.0	212	L	He.	Al.	5	N	PS	N	Pu.	N	N	Ste.	Y	N-E.	N-E.	D.Own	Own	m-Own	½ Own	4.16	E-R	I-R	N	Own	S-55	Pr-Ze.
DuPont E	125	32x6.20	Wis. Y	6-3⅜x5	27.3	268	I	Ch.	CI	3	N	PC	N	Pu.	N	N	Sch.	N	Bosch	Bosch.	D.Long	Cpl	m-Alm	½ Col	4.7	E-F	E-T	H	Ross	S-60	Pr-A-Z
Elcar 6-70	117	28x5.25	Lyc. WT	6-27/8x43/4	19.8	185	L	Ch.	CI	4	N	PC	N	Pu.	N	N	Swan.	N	D-R	D-R	P.Long	W-G	m-	½ Sal	4.9	E-F	E-T	H	Ross	S-51	Oe-
Elcar 8-82	123	30x6.00	Lyc. GT	8-25/8x43/4	24.2	226	L	Ch.	CI	5	Y	PK	Y	Pu.	Y	N	Swan.	N	D-R	D-R	P.Long	W-G	m-	½ Sal.	4.6	E-F	E-T	H	Ross	S-55⅞	Pr-Al.
Elcar 8-90	127-132	32x6.20°	Lyc. 4HM	8-3¼x4½	33.8	299	L	Ch.	Al.	5	Y	PC	Y	Pu.	N	N	Swan.	N	D-R	D-R	D.Long	W-G	m-Spi	½ Sal.	4.7	E-F	E-T	H	Ross	S-58	Bowen
Erskine 6	107	28x4.40	Own. 8F	6-2⅝x4½	16.5	146	L	Ch.	CI	4		PK	F	Pu.	N	N	Str.	Y	D-R	D-R	P.Long	War	m-Spi	½ Tim	5.12	I-F	I-F	M	Gem	S-52	Pr-Al.
Essex 6	110½	30x4.75	Own. 6	6-2¼x4¼	17.3	145	L	Ch.	Al.	3	N	PS	N	Th.	N	Y	Ste.	N	A-L.	A-L.	P-Own	Own	m-Spi	½ Own	5.60	E-R	I-R	N	Own	S-54⅞	Ow
Falcon-Knight	109½	30x5.00	Wilson	6-2¼x37/8	20.7	144	X	Ch.	CI	7		PK	Y				Til.	Y	A-L.	A-L.	P.B&B		m-	½	5.11	I-F	I-R	Se		S-51¾	Pr-
Flint Z-18	110	30x5.25	Con. 9L	6-2⅝x4⅝	18.1	169	L	Ch.	Al.	4	N	PK	N	Pu.	N	N	Joh.	N	A-L.	A-L.	P.Own	Own	m-U-M	½ Own	4.87	E-R	E-T	N	Own	S-52	Pr-Ze.
Flint 60	115	30x5.77	Con. 14U	6-3¼x4⅝	25.3	230	L	Ch.	CI	7	N	PK	Y	Pu.	Y	N	Sch.	Y	A-L.	A-L.	P.Own	Own	m-Spi	½ Own	4.77 4.09	I-F	E-T	H	Ross	S-51½	Pr-Ze.
Flint 80	120	32x6.20	Con. 6E	6-3⅜x5	27.3	268	L	Ch.	CI	7	Y	PC	Y	Pu.	Y	N	Str.	Y	DeJo	A-L.	P.Own	Own	m-Spi	½ Own	4.77	I-F	E-T	H	Ross	S-55	Pr-Ze.
Ford T	100	29x4.40	Own. T	4-3¾x4	22.5	177	L	He.	CI	3	N	Sp	N	Th.	N	N	Hol.	N	Own	Own	D.Own	Own	m-Own	½ Own	3.63	E-T	I-R	N	Own	O-43½	OG
Franklin 11	119	31x5.25	Own. a1	6-3¼x4	25.3	199	I	Ch.	Al.	7	Y	PC	Y	A.	N	O	Str.	Y	A-K	Dyn	P.B-L	Own	m-Spi	½ Own	4.73	E-T	E-R	N	Own	E-38	Pr-Ze.
Gardner 6B	118	31x5.25	Lyc. 4SM	6-3¼x4½	25.3	224	L	Ch.	CI	4	N	PC	N	Pu.	Y	N	Sch.	N	Remy	Remy	P.B&B	War	m-Cle	½ Col	4.90	I-F	I-R	M	Ross	S-57	Pr-Al.
Gardner 80	122	30x5.25	Lyc. GT	8-23/4x43/4	24.2	226	L	Ch.	CI	5	Y	PK	F	Pu.	Y	N	Sch.	Y	D-R	D-R	P.B&B	W-G	m-Cle	½ Col	4.89	I-F	E-T	M	Ross	S-57	Pr-Ba.
Gardner 90	130	32x6.00	Lyc.	8-3¼x4½	33.8	298		Ch.	CI	5	Y	PC	F	Pu.	Y	N	Sch.	Y	D-R	D-R	P.B&B	W-G	m-Cle	½ Col	4.25	I-F	E-T	M	Ross	S-57	Pr-Al.
Hertz D-1	114	30x5.77	Con. 18U	6-3¼x4⅝	25.3	230	L	Ch.	CI	7	Y	PF	N	Pu.	N	N	Zen.	Y	Delco	Delco	D.Long	Det	m-Alm	½ Tim	4.89	I-F	E-T	M	Ross	S-56	Pr-Al.
Hudson Super 6	127¾	33x6.00	Own. 6	6-3½x5	29.4	288	F	Ch.	Al.	4	N	PS	N	Pu.	N	Y	Ste.	N	A-L.	A-L.	P-Own	Own	m-Spi	½ Own	4.45	E-R	I-R	N	Gem	S-57½	Ow
Hupmobile A-1	114	30x5.25	Own. "A"	6-3⅛x4¼	23.4	196	L	Ch.	CI	4	Y	PC	Y	Pu.	Y	N	Str	N	A-L.	A-L.	P-B&B	Det	m-Mec	½ Own	4.90	B-F	E-R	M	Ross	S-54	Pr-Al.
Hupmobile E-3	125	32x6.00	Own. E	8-3 x4¾	28.8	268	L	Ch.	CI	5	Y	PK	F	Pu.	Y	N	Str.	Y	Delco	A-L.	D.Long	Det	m-U-P	½ Own	4.9°	E-F	E-T	H	Ross	S-56½	Pr-Al.
Jordan 6	165¾‡	28x5.25	Cont.	6-3¼x4	25.3	199	L	Ch.		7			Y				Str.	Y	A-L.	A-L.	P					E-F.		H		S-	
Jordan AA	125½	32x6.20	Con. 9K	8-3 x4⅜	28.8	268	L	Ch.	CI	5	Y	PK	N	Pu.	Y	N	Str.	Y	Bosch	Bosch	P.Det	Det	m-Alm	½ Tim	4.64	E-F	E-T	H	Gem	S-55¾	Pr-Al.
Jordan J-1	116	32x6.00	Con. 8S	8-27/8x43/4	26.4	247	L	Ch.	CI	5	Y	PF	N	Pu.	Y	N	Str.	Y	Bosch	Bosch	P.Long	War	m-Alm	½ Tim	4.4°	E-F	E-T	H	Gem	S-55¾	Pr-Al.
Kissel 55	124	33x6.00	Own. 55	6-3⅛x5⅛	32.6	265	L	Ch.	Al.	3	N	PF	Y	Pu.	Y	N	Sch.	Y	Remy	Remy	P.B&B	W-G	m-Spi	½ Tim	4.09	E-F	E-T	H	Ross	S-60	Pr-Da.
Kissel 8-65	125-132	32x6.00	Own. 65	8-27/8x43/4	26.5	246	L	Ch.	Al.	5		PC	F	Pu.	Y	N	Sch	Y	D-R	D-R	P.B&B	W-G	m-Spi	½ Tim	4.6°	E-F	E-T	H	Ross	S-60	Pr-Da.
Kissel 75	131-139	33x6.00	Own. 75	8-3⅛x4½	32.6	287	L	Ch.	Al.	5	Y	PF	Y	Pu.	Y	N	Sch.	Y	Remy	Remy	P.B&B	W-G	m-Spi	½ Tim	4.89	E-F	E-T	H	Ross	S-60	Pr-Da.
Lincoln 8	136	33x5†	Own. 8	8-3½x5	36.4	358	L	Ch.	Al.	5	N	PC	N	Pu.	N	Y	Str.	Y	Delco	Delco	D.Own	Own	m-Spi	Fl Tim	4.58	I-F	E-R	M	Own	S-60	Pr-Al.

KEY TO SYMBOLS

°—Others Furnished
•—At extra cost
§—Standard open models—Balloons at extra cost.
†—Balloons at extra cost
‡—Overall Length
½—Semi-floating
¾—Three-quarter floating
A—Air
Al—Aluminum
A-Z—Alemite-Zerk
B—Semi-steel
B-F—Both internal and external, four wheels
BO—Bevel Gear Overhead shaft
Ch—Chain
CI—Cast Iron
CO—Chain; Overhead shaft
Cu—Oil and grease cups
D—Multiple disk
E—Full elliptic
E-F—External four wheels
E-R—External rear wheels
E-T—External transmission
f—Fabric
F—Filter
Fl—Full floating
G—Head and side
Gr—Grease cups
H—Horizontal (valves)
H—Hydraulic (brakes)
He—Helical gear
Hol—Holley
I—In head
I-F—Internal four wheels
I-R—Internal rear wheels
J—Three-quarter elliptic
K—Cone
L—L head
m—Metal
M—Mechanical
N—None
N—Platform (rear springs)
O—Optional (brakes)
O—Special type (rear springs)
Oc—Oil cups
OG—Oil and Grease Cups
Ow—Oil cups with wick feed
P—Single plate
Pr—Pressure gun
PC—Pressure to all crankshaft and connecting rod bearings
PF—Full pressure to all bearings
PK—Pressure to crankshaft, connecting rods and camshaft bearings
PS—Splash with pressure
Pu—Pump
Q—Quarter elliptic
R—Rectifier
S—Semi-elliptic
Se—Servo
Sep—Separate
Sp—Splash (lubrication)
Sp—Spur gear (camshaft drive)
Spe—Special make
Sta—Standard
T—T head
Th—Thermo-syphon
V—Cantilever
Var—Varies
X—Sleeve valve
Y—Yes

ABBREVIATIONS—NAMES OF MFRS. OF STOCK PARTS

A-K—Atwater Kent
A-L—Auto-Lite
Ada—Adams
Al—Alemite
Alm—Almetal
Ans—Ansted
B&B—Borg & Beck
B-L—Brown-Lipe
Bal—Ball & Ball
Ba—Bassic cups
Car—Carter
CAS—CAS Products
Cle—Cleveland
Cli—Climax
Con—Continental
Col—Columbia
Cpl—Campbell
Da—Dawson
DeJo—DeJon
Det—Detroit
Do—Dot
D-R—Delco-Remy
Dur—Durston
Dyn—Dyneto
Eat—Eaton
Fli—Flint
Ful—Fuller
Gdr—Goodrich
Gem—Gemmer
G & H—Guay & Haigh
Hoo—Hoosier
Jac—Jacox
Joh—Johnson
Ju—Justrite
L-N—Leece-Neville
Lav—Lavine
Lyc—Lycoming
M&E—Merchant&Evans
Mar—Marvel
Mec—Mechanics Machine
Mun—Muncie
N-E—North East
Nor—Northway
Pet—Peters
Ray—Rayfield
Roc—Rockford
Sa—Saal
Sal—Salisbury
Sch—Schebler
Sne—Snead
Spe—Special Make
Spi—Spicer
Spl—Splitdorf
Ste—Stewart
Stl—Sterling
Str—Stromberg
Thr—Thermoid
The—Thiemer
Til—Tillotson
Tim—Timken
U-M—Universal Machine
U-P—Universal Products
W-G—Warner Gear
War—Warner
Wes—Westinghouse
W-M—Willys-Morrow
Wis—Wisconsin
Ze—Zerk
Zen—Zenith

(Continued on page 42)

for Economical Transportation

CHEVROLET

The Most Beautiful CHEVROLET *in Chevrolet History*

THE Most Beautiful Chevrolet in Chevrolet History is the most outstanding triumph ever achieved in the production of low-priced automobiles. Every model offers qualities of elegance, individuality and smartness that you would expect to find only in cars costing thousands of dollars more.

The Most Beautiful Chevrolet in Chevrolet history is more than ever in the forefront of all cars in its price class—offering to buyers in the world's greatest motor car market a greater measure of distinction, comfort and performance than was ever before provided at a price so low.

CHEVROLET MOTOR COMPANY, DETROIT, MICH., *Division of General Motors Corporation*

QUALITY AT LOW COST

Mechanical Specifications of Current Passenger Car Models—Continued *(From page 40)*

MAKE AND MODEL	Wheel Base' (Inches)	Tire Size Decimals-Balloons	ENGINE: Make and Model	ENGINE: Number of Cyls., Bore and Stroke	ENGINE: Rated H.P. N.A.C.C.	ENGINE: Piston Displacement	ENGINE: Valve Arrangement	ENGINE: Camshaft Drive	ENGINE: Piston Material	ENGINE: No. Main Bear.	ENGINE: Crankshaft Vib'n Damper?	ENGINE: Oiling System	ENGINE: Oil Cleaner?	ENGINE: Cooling System	ENGINE: Thermostat?	ENGINE: Radiator Shutters?	ENGINE: Carburetor Make	ENGINE: Air Cleaner?	ELECTRICAL SYSTEM: Ignition System Make	ELECTRICAL SYSTEM: Generator and Starter Make	Clutch—Type and Make	Gear Set—Make	Universals—Type and Make	REAR AXLE: Type and Make	REAR AXLE: Gear Ratio	BRAKES: Foot—Type and Location	BRAKES: Hand—Type and Location	BRAKES: (4 Wheel Type (* = Optional)	Steering Gear—Make	Rear Springs—Type and Length	Chassis Lubrication—Type and Make
Locomobile	124	30x5.77	Own...8-P	8-2½x4	25.3	199	I	Ch..	C I.	5	Y	P F.	F	Pu..	N	N	Str...	Y	DeJo..	DeJo..	P.Spi..	War .	m-U-M..	½ Ada..	4 .7°	I-F.	I-R.	Se	War ..	S-55⅜	Pr-Ze.
Locomobile	130	32x6.00	Lyc Spe...	8-3¼x4½	33.8	299	L	Ch..	Al..	5	Y	PC.	F	Pu..	Y	N	Str.....	.....	DeJo..	DeJo..	P.B&B..	War..	m-Spi...	½ Sal...	4.81	I-F.	I-R.	Se	Ross..	S-58..	Pr-Ze.
Locomobile	142	33x6.75	Own....48	6-4½x5½	48.6	525	T	He..	C I.	7	Y	P F.	F	Pu..	Y	N	Bal...	N	Delco.	Wes...	P.Own..	Own..	m-Spl...	Fl Own..	3.50	B-F.	I-R.	M	Ross..	J-50...	Pr-Ze.
Locomobile "90"	138	33x6.75	Own....90	6-3½x5½	36.0	372	L	Ch..	C I.	7	Y	P C.	F	Pu..	Y	N	Str...	Y	DeJo..	DeJo..	P.Own..	Own..	m-Spi...	½ Eat..	4.5°	I-F.	I-R.	Se	Ross..	S-60..	Pr-Ze.
Marmon Little	116	29x5.25	Own.....	8-2¾x4	24.2	190	I	Ch..	Al..	5	Y	PK.	F	Pu..	N	N	Sch...	N	D-R..	D-R..	P.....	.....	m-.....	.....	Var.	I-F.	I-F.	M	Ross..	S-56..	Myers
Marmon E-75	136	32x6.75	Own..E-75	6-3¾x5½	33.8	340	I	He..	C I.	3	Y	P F.	Y	Pu..	N	N	Sch...	N	D-R	D-R	P.B&B.	Own.	m-Spl..	¾ Own.	Var.	I-F.	I-R.	M	Gem.	Tr-45.	Bowen
McFarlan St. 8	131	33x6.20	Lyc....4H	8-3½x4½	33 8	299	L	Ch..	Al..	5	....	P C	N	Pu..	N	....	Sch...	N	Delco.	Delco.	P. B&B.	W-G..	m-Cle..	½ Tim..	5.11	E-F	E-T	H	Ross.	S-58½	Bowen
McFarlan TV	141¼	33x6.75	Own...TV	6-4½x6	48.6	575	T	He .	Al..	4	....	P F.	N	Pu.	N	....	Swan..	N	DeJo.	DeJo.	P.B&B..	B-L .	mf-Cle..	Fl Tim..	3.53	E-F.	I-R.	H	Ross.	S-64..	Bowen
Moon Series A	113	30x5.25	Con....7Z	6-3½x4¼	23.4	196	L	Ch..	C I.	4	N	P C.	N	Pu.	N	N	Str....	N	Delco.	Delco.	P.B&B.	W-G..	m-Spi...	½ Col..	4.90	E-F.	E-T	H	Ross.	S-54..	Pr-Al.
Moon 6-60	110	29x4.75	Con...26L	6-2⅞x4¾	19.8	185	L	Ch..	CI..	4	N	P C.	F§	Pu.	Y	N	Car...	Y§	Delco.	Remy.	P.B&B..	W-G..	m-Spl...	½ Col..	4.89	E-F.	E-T	H	Ross.	..-54.	Pr-Al.
Nash Light Six	108	30x4.75	Own.....	6-3x4	21.6	170	L	He .	C I.	7	N	P K	Y	Pu.	N	N	Car...	Y	A-L..	A-L..	P.B&B..	Own.	f-Thr...	½ Own.	4.80	B-F.	E-T	M	Ross.	S-50½	Pr-Al.
Nash Advanced	121–127	33x6.00	Own...261	6-3⅛x5	28.4	279	I	He..	C I.	7	N	P F.	Y	Pu.	Y	N	Mar..	Y	Delco.	Delco.	P.B&B..	Own.	{m-Own. {f-Thr .	½ Own..	4.50	B-F.	E-T	M	Gem..	S-56½	Pr-Al
Nash Special	112½	31x5.25	Own...231	6-3¼x4½	25.3	224	I	He..	C I.	7	Y	P F.	Y	Pu.	Y	N	Mar..	Y	Delco	Delco.	P.B&B..	Own.	m-Own..	½ Own..	4.67	B-F.	E-T	M	Gem..	S-53⅞	Pr-Al
Oakland "6"	113	30x5.25	Own....OS	6-2⅞x4¾	19 8	185	L	Ch..	B...	3	Y	P K	F	Pu.	N	N	Mar.	Y	Remy	Remy.	P. Own..	Mun.	m-Mec.	½ Own..	4.73	E-F.	E-T	M	Jac..	S-52½	Pr-Ze..
Oldsmobile 30E	110½	30x5.25	Own..30E	6-2⅞x4¾	19.8	185	L	Ch.	C I.	3	Y	P C.	Y	Pu..	N	N	Joh...	Y	D-R..	D-R..	P.B&B..	Mun.	f-Gdr...	½ Own..	4.73	B-F.	E-R	M	Jac..	S-50¼	Pr-Al..
Overland (4) Whippet	100¼	28x4.75	Own.....	4-3½x4	18.2	143	L	Ch..	C I	3	N	P K.	N	Pu.	N	N	Til....	N	A-L..	A-L..	P.B&B..	Own..	m-Mec..	½ Own..	5.11	B-F	E-R	M	Own..	S-51¾	Pr-Al.
Overland (6) Whippet	106	29x4.75	Own....96	6-3 x4	21.6	170	L	He..	C I.	3	N	P K.	N	Pu.	N	N	Til....	N	A-L..	A-L..	P.B&B..	Own..	m-Mec..	½ Own..	4.67	I-F..	I-R	M	Own..	S-56..	Bijur
Packard 6	126–133	33x5.77	Own.....	6-3½x5	29.4	289	L	Ch..	Al..	7	N	P F	R	Pu.	Y	N	Own..	N	Delco	Dyn..	P.Own..	Own..	m-Mec..	½ Own..	4.33	I-F..	I-R	M	Own..	S-56..	Bijur
Packard 8	136–143	33x6.75	Own.....8	8-3½x5	39.2	385	L	Ch..	Al..	9	Y	P F.	R	Pu.	Y	Y	Own..	N	Delco	Dyn..	P.Own..	Own..	m-Mec..	½ Own..	4.33	I-F..	I-R	M	Own..	S-56..	Bijur
Paige 6-45	109	30x5.25	Con. .Spec.	6-2⅞x4¾	19.8	185	L	Ch..	C I	4	N	PK.	N	Pu.	N	N	Joh ..	Y	Remy.	Remy.	P.Roc...	War .	m-Mec..	½ Sal...	4.45	E-F.	E-T	H	Gem..	S-58..	Pr-Ze.
Paige 6-75	125	32x6.00	Own....75	6-3½x5	27.3	268	L	Ch..	Al..	3	N	P K	N	Pu.	Y	N	Joh...	Y	A-K..	Remy.	D.Long..	W-G..	m-Mec..	½ Sal...	4.82	E-F.	E-T	H	Gem..	S-58 ..	Pr-Ze.
Paige 6-65	115	31x5.25	Own.....65	6-3¼x5	25.3	249	L	Ch..	C I.	3	N	P F.	N	Pu.	Y	N	Joh...	Y	A-K..	Remy.	D.Long..	.....	m-Mec..	½ Sal...	4.45	E-F.	E-T	H	Gem..	S-54..	Pr-Ze
Paige 8-85	131½	32x6.00	Lyc..Spec.	8-3¼x4½	33.8	299	L	Ch..	Al..	5	Y	PK.	F	Pu.	Y	N	.....	Y	D-R..	D-R..	D.Long..	W-G..	m-Mec .	½ Sal...	3.69	E-F.	E-T	H	Gem..	S-58..	Pr-Ze.
Peerless 6-60	116	29x5.25	Cont Spec.	6-3¼x4	25.3	199	L	Ch..	Al..	7	....	.....	.....	.....	.....	.....	Str.....	.....	A-L...	A-L..	P.....	.....	m-.....	½ Col..	44.4	E-F	E-T	H	.....	S-54¼	.....
Peerless 6-72	126½–133½	33x6.00	Own....72	6-3½x5	29.4	289	L	Ch..	Al..	7	N	P K	F	Pu.	N	Y	Joh...	N	Delco.	Delco.	P.B&B..	Own..	m-Spi...	½ Eat..	4.42	E-F.	I-R	H	Ross.	S-56.	Pr-Al.
Peerless 6-80	116	32x6.00	Con....8U	6-3¼x4⅝	25.3	230	L	Ch..	Al..	7	Y	P K	N	Pu.	N	Y	Str...	Y	A-L...	A-L..	P.B&B.	Det..	m-Spi...	½ Col..	4.4°	E-F	E-T	H	Ross.	S-54..	Pr-Al.
Peerless 8-69	133½	33x6.20	Own....69	8-3¼x5	33.8	332	L	He..	C I.	3	N	P K	F	Pu.	N	Y	Str...	Y	Delco.	Delco.	P. B&B.	Own..	m-Spi...	½ Eat..	4.42	E-F.	I-R	H	Ross.	S-56..	Pr-Al.
Peerless 6-90	120	32x6.00	Own....90	6-3½x5	29.4	289	L	Ch..	Al..	7	....	P K.	F	Pu.	N	Y	Str...	Y	A-L...	A-L..	P. B&B.	Det..	m-Spi...	½ Col..	4.4°	E-F.	E-T	H	Ross.	S-54 ..	Pr-Al..
Pierce Arrow 36	138	33x6.75	Own.....36	6-4 x5½	38.4	415	T	He..	C I.	7	Y	P F.	Y	Pu.	Y	Y	Own..	N	Delco	Delco.	D.Own..	Own..	m-Spi...	½ Own.	4.25	I-F	I R	M	Gem.	S-61¼	Pr-Ze
Pierce Arrow 80	130	32x5.77	Own.....80	5-3½x5	29.4	289	L	Ch..	C I.	7	Y	P F.	F	Pu.	Y	Y	Own..	N	Delco	Delco.	P.B&B..	B-L..	m-Spi...	½ Tim..	4.45	I-F	I-R	M	Gem.	S-56½	Pr-Ze
Pontiac Six	110	29x4.75	Own..6-27	6-3¼x3¾	25.3	186	L	Ch..	B...	3	N	P C.	F	Pu.	N	N	Car...	N	Remy.	Remy.	P. Own.	Own..	m-Own..	½ Own.	4.18	E R	I-R	N	Jac..	S-54..	Pr-Ze..
Reo A	121	30x6.20	Own.....A	6-3½x5	25.2	249	L	Ch..	Al..	7	Y	P K	Y	Pu.	Y	Y	Sch...	Y	D-R..	D-R..	P.Long..	Own..	m-Det..	½ Own.	4.5°	I-F.	E-T	H	Ross	S-55..	Pr-Ze
Rickenbacker 6-70	117	31x5.25	Own.. 6-70	6-3¼x4¾	25.3	236	L	Ch..	C I.	7	....	P C.	Y	Pu.	N	N	Str...	Y	Bosch.	Bosch.	P. Long.	Mec..	m-Mec..	½ Col..	4.70	I-F	E-T	M	Gem	S-57..	Pr-Al.
Rickenbacker 8-80	119½	32x6.00	Own...8-00	8-3 x4¾	28.8	268	L	Ch.	CI..	9	Y	PC..	N	Pu.	Y	N	Zen...	Y	Delco.	A.Bos	P.Long..	Mec..	m-Mec..	½ Col..	4.70	I-F.	I-R.	M	Han..	S-52..	Pr-Al..
Rickenbacker 8-90	136	33x6.00	Own...B-8	8-3½x4¾	33.8	315	L	Ch..	C I	9	....	P C	N	Pu.	Y	Y	Zen...	Y	Delco.	Bosch.	P. Long.	War..	m-Mec..	½ Col..	4.70	I-F.	I-R	M	Han..	S-57..	Pr-Al.
Roamer 8 78	.....	32x6.00	Lyc...GT	8-2⅞x4¾	24.2	226	L	Ch..	C I.	5	....	PK	N	Pu.	.....	N	.....	.....	.....	.....	P.B&B.	.....	.....	Sal..	.....	.....	.....	H	Ross.	S-..	.....
Roamer 8-88	126	32x6.25	Lyc..4HM	8-3¼x4½	33.8	296	L	Ch..	C I.	5	Y	P C.	N	Pu.	N	N	Sch ..	N	A-L..	A-L..	P.Jones..	.....	m-Mec.	Tim....	4.64	E-F.	E-T	H	Ross	S-56½	Pr-Al.
Rolls Royce...Silver Ghost	143½	33x5†	Own. 40–50	6-4½x4¾	48.6	453	L	He..	Al..	7	Y	P F.	F	Pu.	N	Y	Own..	N	Bosch	Wes...	K.Own..	Own..	m-Own.	Fl Own..	3.72	I-R	I-R	N	Own.	V-54½	Pr-Al.
Star 4	103	30x3½	Con...W-5	4-3⅜x4¼	18.2	152	L	Ch..	Al..	3	N	P K	N	Pu.	N	N	Til....	N	A-L..	A-L..	P.Own..	Own..	m-Spi...	½ Own	4.87	E-R	I-R	N	Own..	S-53¾	Pr-Al
Star 6	107	30x4.75	Con...14L	6-2⅞x4¾	18.2	169	L	Ch..	C I.	4	N	P K	N	Pu.	N	N	Til....	N	A-L..	A-L..	P.Own..	Own..	m-Spi...	½ Own.	4.87	E-R	I.R.	N	Own.	S-53¾	Pr-Al
Stearns Knight F 6-85	137	32x6.75	Own.F 6-85	6-3½x5	29.4	289	X	Ch..	C I.	7	N	P K	Y	Pu.	N	N	Til....	Y	DeJo..	DeJo..	P.B&B..	Own..	m-Mec..	½ Tim..	4.9	I-F..	I-R.	M	Ross..	S-62..	Pr-Al..
Stearns Knight G-8	137	32x6.75	Own...G-8	8-3½x5	39.2	388	X	Ch..	CI..	9	N	PK.	Y	Pu..	N	N	Til....	Y	DeJo..	DeJo.	D.Long..	Own..	m-Mec..	Tim.....	.....	I-F	I-R	M	Ross..	S-62..	Pr-Al.
Studebaker Sta. 6	113	31x5.25	Own.....	6-3⅜x4½	27.3	242	L	Ch..	C I.	4	N	P K	F	Pu..	N	N	Str....	Y	{Wag. {Remy	{Wag. {Remy	P.Own..	Own..	f-Thr....	½ Own..	4.18	B-F.	E-T	M	Own..	S-50½	Pr-Al
Studebaker Spec. 6	120	32x6.00	Own.....	6-3½x5	29.4	289	L	He..	C I.	4	Y	P K	F	Pu..	N	N	Str...	Y	{Wag. {Remy	{Wag. {Remy	P.Own..	Own..	m-Spi...	½ Own.	4 36	E-R	E-T	H*	Own..	S-56..	Pr-Al.
Studebaker Big 6	{120 {127	32x6.00) 32x6.75)	Own.....	6-3⅞x5	36.0	353	L	He..	C I.	4	Y	P K	F	Pu.	N	N	Bal...	Y	{Wag. {Remy	{Wag. {Remy	P.Own..	Own..	m-Spi...	½ Own.	3.69 4.08	B-F	E-T	M	Own..	S-56..	Pr-Al.
Stutz AA	131-145	32x6.20	Own.....	8-3¼x4½	33.8	299	I	CO.	C I.	9	N	P F.	F	Pu..	N	N	Zen...	Y	Delco	Delco.	P.B&B.	Det..	m-Mec.	½ Tim..	Var.	I-F.	E-T	Hs	Ross.	S-62..	Myers
Velie Std. 50	112	29x4.95	Own....54	6-3⅛x4¼	23.4	196	I	He .	C I.	4	Y	P F.	N	Th .	N	N	Str...	N	A-L..	A-L..	P.B&B.	W-G..	m-Cle...	½ Own.	4.90	E-F.	E-T	H	Ross.	S-55...	Pr-Ze.
Velie Spec. 60	118	30x5.25 32x6.00	Own.....52	6-3⅜x4⅝	24.4	221	I	He..	C I.	4	N	P F.	N	Th..	N	N	Str....	N	Remy.	Remy.	P.B&B..	Mec...	m-Cle...	½ Own..	4.70	E-F.	E-T	H	Ross..	S-55..	Pr-Do.
Wills Ste. Claire T6	127	32x6.20	Own.....	6-3½x5½	25.4	274	I	BO.	C I.	7	N	P F.	N	Pu..	Y	Y	Sch...	N	Delco	Delco Bosch.	P.Own..	Own..	m-Spi...	½ Tim..	4.45	E-F.	E-T	H	Own..	S-58..	Pr-Al.
Willys Knight 66-A	126	32x6.00	Own..66-A	6-3¼x4¾	25.4	236	X	Ch..	Al..	7	N	P K	R	Pu..	Y	N	Til....	Y	A-L..	A-L..	P.B&B..	Own..	m-Mec.	¾ Own..	4.70	B-F	I-R.	M	Cwn..	S-62¾	Pr-Al
Willys Knight 70-A	113¼	32x6.00	Own..70-A	6-2½x4⅜	20.7	178	X	Ch..	Al..	7	N	P K	R	Pu..	Y	N	Til....	Y	A-L..	A-L..	P.B&B..	Own..	m-Mec..	½ Own.	5.11	B-F.	E-T	M	Own..	S-55¼	Pr-Al.

KEY TO SYMBOLS

°—Others Used
•—At extra cost
§—On De L. Brougham only
†—Balloons at extra cost
½—Semi-floating
¾—Three-quarter floating
A—Air
Al—Aluminum
B—Semi-steel
B-F—Both internal and external, four wheels
BO—Bevel Gear Overhead shaft
Ch—Chain
CI—Cast iron
CO—Chain; Overhead shaft
Cu—Oil and grease cups
D—Multiple disk
E—Full elliptic
E-F—External four wheels
E-R—External rear wheels
E-T—External transmission
f—Fabric
F—Filter
Fl—Full floating
G—Head and side
Gr—Grease cups
H—Horizontal (valves)
H—Hydraulic (brakes)
He—Helical gear
Hs—Hydrostatic
I—In head
I-F—Internal four wheels
I-R—Internal rear wheels
J—Three-quarter elliptic
K—Cone
L—L head
m—Metal
M—Mechanical
N—None
N—Platform (rear springs)
O—Optional (brakes)
O—Special type (rear springs)
Oc—Oil cups
OG—Oil and Grease Cups
Ow—Oil cups with wick feed
P—Single plate
Pr—Pressure gun
PC—Pressure to all crankshaft and connecting rod bearings
PF—Full pressure to all bearings
PK—Pressure to crankshaft, connecting rods and camshaft bearings
PS—Splash with pressure
P&T—Combination Pump and Thermo-syphon
Pu—Pump
Q—Quarter elliptic
R—Rectifier
S—Semi-elliptic
Sep—Separate
Sp—Splash (lubrication)
Sp—Spur gear (camshaft drive)
Spe—Special make
Sta—Standard
T—T head
Th—Thermo-syphon
Tr—Transverse "X" Shape
V—Cantilever
Var—Varies
X—Sleeve valve
Y—Yes

ABBREVIATIONS—NAMES OF MFRS. OF STOCK PARTS

A-K—Atwater Kent
A-L—Auto-Lite
Ada—Adams
Al—Alemite
Alm—Almetal
B&B—Borg & Beck
B-L—Brown-Lipe
Ba—Bassic cups
Bowen
Car—Carter
Cle—Cleveland
Cli—Climax
Con—Continental
Col—Columbia
Cpl—Campbell
DeJo—DeJon
Det—Detroit
Dit—Ditweiler
Do—Dot
D-R—Delco-Remy
Dur—Durston
Dyn—Dyneto
Eat—Eaton
Fli—Flint
Ful—Fuller
Gdr—Goodrich
Gem—Gemmer
Gi—Gits
Hoo—Hoosier
Jac—Jacox
Joh—Johnson
L-N—Leece-Neville
Lav—Lavine
Lyc—Lycoming
M&E—Merchant & Evans
Mar—Marvel
Mec—Mechanics Machine Co.
Mon—Monson
Mun—Muncie
N-E—North East
Nor—Northway
Pet—Peters
R-D—Rochester-Duesenberg
Ray—Rayfield
Roc—Rockford
Sa—Saal
Sal—Salisbury
Sch—Schebler
Sne—Snead
Spe—Special Make
Spi—Spicer
Spl—Splitdorf
Ste—Stewart
Stl—Sterling
Str—Stromberg
Thr—Thermoid
Til—Tillotson
Tim—Timken
U-M—Universal Machine
U-P—Universal Products
W-G—Warner Gear
Wag—Wagner
War—Warner
Wat—Watford
Wes—Westinghouse
W-M—Willys-Morrow
Wis—Wisconsin
Ze—Zerk
Zen—Zenith

Nothing is More Important to Dealer or Jobber!

By tying up with the AC line, dealers and jobbers are affiliating themselves not only with the most powerful organization in the industry, but with a line which insures them enormous sales possibilities now and for the years to come.

AC Products are nationally known:

AC Spark Plugs are used as equipment on over 148 makes of cars, trucks, tractors and engines.

AC Speedometers are furnished as equipment on more than 50% of the output of present day production of cars.

AC Oil Filters are equipment on more than 50% of the production of cars being equipped with oil filters.

AC Air Cleaners are sent out as equipment on more than 60% of the cars that are equipped with air cleaners.

AC equipment, increasing steadily from year to year, is building a tremendous replacement business which will carry on as long as automobiles are made.

AC Spark Plug Company, FLINT, *Michigan*

AC-SPHINX
Birmingham
ENGLAND

Makers of AC Spark Plugs—AC Speedometers —AC Air Cleaners—AC Oil Filters

AC-TITAN
Levallois-Perret
FRANCE

AC SPARK PLUGS AC SPEEDOMETERS AC AIR CLEANERS AC OIL FILTERS

SIMPLEX
Piston Rings

Simplex Piston Rings supersede all other methods of rebuilding cylinders and pistons.

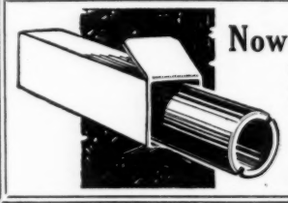
GUARANTEED 10,000 MILES
against Oil Pumping, Piston Slap and Compression Loss

Send for details of this short cut scientific method of reconditioning ALL cylinders, no matter how worn, tapered, out of round or heat distorted.

THE SIMPLEX PISTON RING COMPANY
of America, Incorporated
1971 East 66th Street, Cleveland, Ohio

EATON BUMPERS

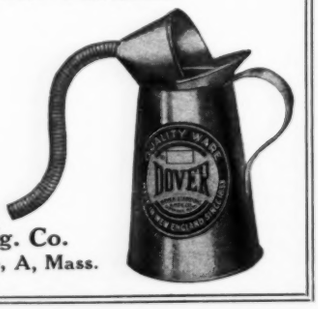
BEAUTIFUL — Quick Sellers — Easily Installed
The Eaton Bumper & Spring Service Co., Cleveland, O.



Now--5 Different Oversizes
to every standard size and type of Piston Pin—in stock, waiting for your telegraphic order.
THOMPSON PISTON PINS
Defiance Ohio

You Can Reach Easier with
***The New* DOVER FLEXO COMBINATION MEASURE *and* FUNNEL**

Conveniently reaches any oil hole or tank on any make of car. Quick, clean and easy to use. Tube unscrews and packs inside of measure. Made in 3 capacities: 1, 2 and 4 quarts. Prices: $2.00, $2.25 and $2.50.



Dover Stamping & Mfg. Co.
385 Putman Ave., Cambridge, A, Mass.

ACCURATE

Automatic air vending equipment that correctly weighs clean, filtered air. No tire gauge needed.

NEW AND IMPROVED
Air-Scales

DEPENDABLE

THE AIR SCALE CO.
812 Broadway, Toledo, O.

Bigler
BETTER BUILT
MOTOR TRUNKS

Motor Trunks, Racks and Equipment exclusively. All types and styles. Genuine Duco finish, or bright black. A money-making line. Write.

BIGLER MANUFACTURING CO.
CHIPPEWA FALLS High St. WISCONSIN

B-196

B U R D
TURNED — QUICK SEATING — OIL PISTON RINGS
BURD HIGH COMPRESSION RING CO., ROCKFORD, ILL.

WESCO TIRE CHAINS
"They Stand the Gaff"

GATES VULCO
Fan Belts and Radiator Hose
Made By
The World's Largest Makers of Fan Belts

LYCOMING *Motors*
Fine Fours, Sixes and Eights-in-Line
LYCOMING MANUFACTURING COMPANY, Williamsport, Pa.
Years Ahead in Automobile Motor Efficiency

SHALER
WAUPUN, WIS.
World's Headquarters for Tire Repair Equipment

Simplicity
REG. U. S. PAT. OFF.
REBORER AND GRINDER
A big money-maker in any automobile repair shop or garage. Ask for free demonstration in your own shop.
SIMPLICITY MANUFACTURING COMPANY
Port Washington Wisconsin

"The Right Bearing for Every Car"

B C A

Thrust Bearing

Where The Password Is Accuracy

At the plant of the Bearings Company of America, inaccuracy and carelessness have no place. Every operation in the making of a B. C. A. Bearing is done with precision—then carefully inspected.

The result of this policy is a Bearing that runs true to dimensions and free from internal flaws. That is why B. C. A. Bearings are found in most of the finest cars made in America today.

May we explain to you where you can use B. C. A. Ball Bearings advantageously?

Detroit, Michigan, Office
1012 Ford Bldg.

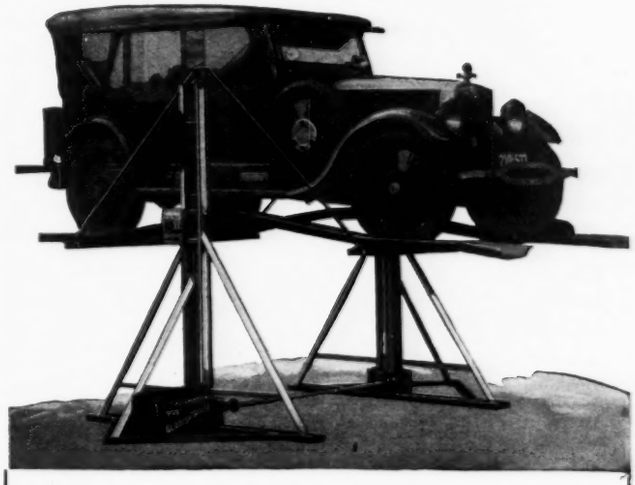
THE BEARINGS COMPANY of AMERICA
LANCASTER, PA.

In the next issue of

MOTOR AGE

there may be a new idea that will mean many dollars of profit to you - -

Don't miss it!



5 foot Lift in 2 minutes

The Gladish Hoist

This is the most efficient hoist ever manufactured. No installing expense. No pits to dig and concrete. No expensive runways to build. No center braces or supports to hinder the operator. Absolutely safe. A child can operate it.

Note: Let us give you complete information on this hoist. There is no obligation on your part.

The American Hoist Corp.
2420 East 14th St., Department 1
Chattanooga, Tenn.

A COMPLETE STOCK of AUTO PARTS and ACCESSORIES

5-Day Money Back Guarantee
Repossessed Used Cars
Write for Low Prices
UNITED AUTO WRECKERS
2429 S. State St. Established 1916 Chicago

When temperature is below 60° Fahrenheit every motor that runs needs the protection of
PINES AUTOMATIC WINTERFRONT
For complete selling information write your nearest distributor or direct to
PINES WINTERFRONT CO., 422 N. Sacramento Blvd., Chicago

Stops Pump Shaft Leaks and Saves the Winter Solution
Conneaut Plastic Metallic Packing molds in the fingers to fit stuffing-boxes of any size or shape. It is a repair for the worn shaft and loose bushing. At your jobbers; if not write us.
1 lb. can.....$1.75 per pound
5 lb. can.....$1.60 per pound
THE CONNEAUT PACKING CO.
Conneaut, Ohio

Rie-Nie
FAN BELTS
Vee Round or Flat Type—With but twenty standard sizes you are equipped to fill any fan belt call.
DURKEE-ATWOOD CO.
MINNEAPOLIS, U.S.A.

WEIDENHOFF
Shop Equipment
for Battery and Electrical Service
4358 Roosevelt Road, Chicago, Ill.

NEXT WEEK
—is the time to read next week's issue of MOTOR AGE, as you are reading this week's issue this week.
MOTOR AGE
5 So. Wabash Ave. Chicago, Ill.

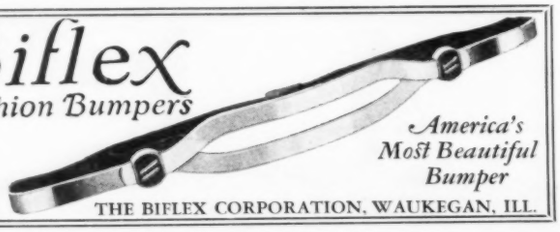
QUALITY—PROFIT—TURNOVER
American Hammered Piston Rings
Baltimore, Maryland
American Hammered Piston Ring Company

SIOUX
Valve Face Grinding Machine
Get a demonstration of Sioux before you buy any valve grinding machine. GUARANTEED FOR A LIFETIME.
Your Jobber Sells It
ALBERTSON & CO.
Sioux City, Ia.

R.I.V. Means Quality in Every Language
R·I·V·Co.
250 West 57th St. New York City

GASOLINE K-S Telegage
And now, a Telegage for the Ford. See our half page advertisement in the Saturday Evening Post, January 29th. Write for description and proposition to the trade.
KING-SEELEY CORPORATION
298 Second Street Ann Arbor, Michigan
Chicago Branch, 2450 Michigan Boulevard

Biflex Cushion Bumpers



America's Most Beautiful Bumper
THE BIFLEX CORPORATION, WAUKEGAN, ILL.

WEL-EVER
"OIL CONTROL" PISTON RINGS
The Motor Necessity That Has Made Good
Backed by Seven Years' Satisfactory Service
THE WEL-EVER PISTON RING CO., TOLEDO, OHIO
Sold most everywhere. If your dealer cannot supply you write us.

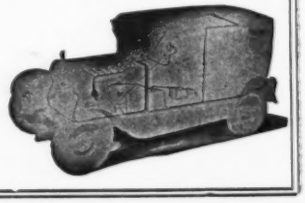
Let us send our profit-boosting plan. It's Free.

Mallory Ignition Coil
Has two primary windings instead of one. Gives a hotter spark, makes easier starting, gives more power, quicker pickup and more mileage. Try it on a sluggish motor. Write for full particulars.
The Mallory Electric Corporation
Toledo, Ohio

TASCO
Gas Gauge for FORD CHEVROLET OVERLAND and STAR

Sells Quick at $1.25 Retail. Types "K" and "J" for 1926 Chevrolets and all Stars Sell at $1.50
THE AKRON-SELLE CO.
Akron, Ohio

Packard Cable
The Packard Electric Co.
Warren, Ohio



LAPS
REG. U.S. PAT. OFF.

LAPS stands for Lupton Auto Parts Storage. LAPS makes the Parts Department profitable through selling display and systematic storage. A System specially designed for every make of car. Write for full information.

DAVID LUPTON'S SONS COMPANY
Sales Office—2631 Woodward Ave.—Detroit

BRUNNER AIR COMPRESSORS FREE

Write for the Book "AIR PROFITS" describing many new uses for compressed air. Shows how to make an air compressor earn greater profits.

BRUNNER MFG. CO.
UTICA NEW YORK

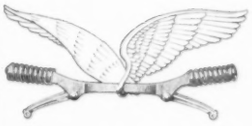
RADIATOR CAPS ORNAMENTS

Faith

Confidence in a product that has been produced with scrupulous attention to detail is born only of experience. Our clients know they receive only the finest in material and artistry.

FAITH MFG. CO., Inc. 2533-39 N. Ashland Ave., Chicago, Ill.

GENERAL MOTORS BUILDING
Broadway to 8th Ave. — NEW YORK — 57th to 58th Street
Renting & Managing Agent
CUSHMAN & WAKEFIELD, INC
50 East 42d Street New York City



Red Wing Suspension For Fords

Improves the riding and handling qualities of Fords, and permits greater speed with safety. Absolutely unbreakable. 30-minute installation. Money-back guarantee. Liberal profits. Write.

RED WING COMPANY
612 N. Michigan Ave. Chicago

Arrow Head's

most complete and flexible up-to-date line assures quick service on the 4000 most-called-for fits and applications, including practically "all motors, all years, all models."

Arrow Head Steel Products Company
Buffalo Minneapolis, Minn. Chicago

The Burgan Cotter Pin Extractor
Works Like Magic

It goes in anywhere, grips the cotter pin—snaps it out in a jiffy—holds it until released. You don't have to pull or twist. Just squeeze the handles. It's a great tool!

Write for prices and details

THE BURGAN CORPORATION
9 So. Clinton St. Chicago, Ill.

WIRE OR WRITE US FOR NEW OR USED
TIRES — PARTS — ACCESSORIES
IF IT'S FOR AN AUTOMOBILE WE HAVE IT!
SEE OUR NEXT DISPLAY IN MOTOR AGE, FEBRUARY 3
STATE AUTO PARTS CORPORATION
2011-13-15 S. State St., Chicago, Ill.

CORK SEALED PISTON RINGS

Here Is Something to Sell!

A piston ring, on the principle of a packing ring, that gives remarkable results in service, is used in thousands by automobile factory branches for replacement—and pays a profit worth while. WRITE FOR DETAILS.

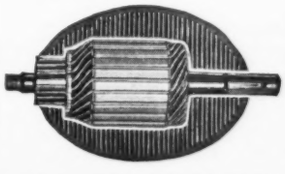
THE CORK-SEALED PISTON RING CORP.
2332 Michigan Avenue, Chicago
Factory: Denver, Colo.
Canadian Distributors: Purser, Bull & Co., Ltd. Toronto, Canada

UNITED STATES Portable Electric DRILLS

Built by the oldest makers of Portable Electric Drills in the World.

Ask for Catalog 105

THE UNITED STATES ELECTRICAL TOOL CO.
Cincinnati, Ohio, U. S. A.



FREDERICKS Rewinding Service

New Rewind Profits—See announcement every 4th week. Write now for price list. The H. M. Fredericks Co., Lock Hoven, Pa.

Kawneer
SOLID COPPER
STORE FRONTS
Write for Special Book—Garage Front
THE KAWNEER CO., 3724 Front St., Niles, Mich.

The Cooper CUT-OUT
ENGINE TESTER AND CARBON OUTLET VALVE

Dependable. Certain. Easily installed. A big seller all the year round.

HALL HONE $35
—the Fastest Cutting Hone Made!
at your Jobber's

CLASSIFIED ADVERTISING

PATENTS & PAT. ATTORNEYS

C. L. PARKER
Ex-Examiner U. S. Patent Office
Attorney-at-Law and Solicitor of Patents
McGill Building, Washington, D. C.
Patent, Trade Mark and Copyright Law

BUSINESS OPPORTUNITIES

MERCHANDISE WANTED: Buyer for group of accessory stores wants to get in touch with manufacturers of salable automotive lines. For attention give particulars of your product in first letter. P. O. Box 572, Philadelphia, Pa.

Business success depends upon the satisfaction of business wants—hence

Classified Advertising

CLASSIFIED ADVERTISING RATES

Ten cents a word is the rate for all undisplayed advertisements set solid, regular want ad style; minimum charge $1 an insertion. All capitals, 12c a word; all capitals, leaded, 15c a word. Payable in adavnce.

"EXPERIENCE"

WHEN you go to an insurance man with an unusual risk that you want covered you are generally told, "I'll look up our experience on that and let you know what we can do." He then gets in touch with a central bureau where his own and perhaps other companies pool their information on such risks, and he finds out just how such cases have worked out in the past. With the facts in hand he is then prepared to handle the situation intelligently.

One of the reasons MOTOR AGE is published is to do the same thing for the automobile dealer that the central bureau does for the insurance man. It is to make available the experience of the trade—to show you how other men have met problems like your own, and how their methods have worked out.

Fortunately, there is an ample body of "experience" to be found in the automotive field. The only problem is that of placing it in the hands of the average dealer, and that is what MOTOR AGE is doing. Each week we present one or more articles showing just how some particular dealer met and overcame a typical situation and in our "Clearing House" is to be found the information given men who approached us with particular problems of which they wanted to get the experience of others.

You, too, can keep in touch with the experience of your trade by reading MOTOR AGE carefully each week. And when you need help in meeting some particular problem, don't hesitate to call on us.

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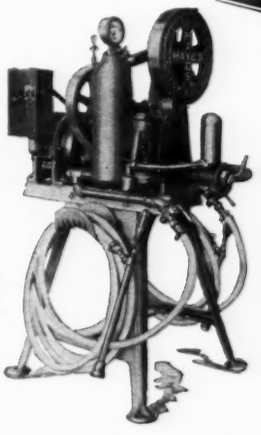
Western Chain Co. 44

"Speed Spra"

The Original Mechanical Car Washer

2 Gun 4 Man Model. Other sizes include 1 Gun 2 Man, 3 Gun 6 Man, 4 Gun 8 Man—a correct size to fit every wash rack need.

From top to running gear in half the time.



"Speed-Spra"

is a proven success. Your problem only is in choosing the right size. Buy for the future. Prepare for the increase in car washing "Speed-Spra" is sure to bring. Wash cars in half the time at double the usual profits.

Before you buy write for Bulletins that show the HAYES "Velvet-Spra" Gun, 4-Way Valve Automatic Governor and other exclusive features. Find out how little "Speed-Spra" costs. Ask your jobber or write us direct.

HAYES PUMP & PLANTER CO.

819 Sixth St.

Dept. 19 Galva, Ill.

"John Crane"

"The Pump Packing the Motor Builders Use"

Only One Style for All Cars

"John Crane" Metallic Packing is standard equipment on over 40% of all cars. Metallic face saves shaft. Resilient core cushions vibration. Keeps pump tight. Saves non-freezing mixtures. Metallic Packing makes a repacking job worth more money. Ask your jobber or order direct.

Compression with the nut makes a one piece metallic packer.

Spool repacks 20 pump packing boxes.

Crane Packing Company

1805 Cuyler Avenue Chicago 109 Broad Street New York

Gentlemen:

Send me C. O. D. ..... Garage size spools of Style 112—$2.50 net. 1/8" size packs all pumps.

Name.....

Address.....

"EXPERIENCE"

WHEN you go to an insurance man with an unusual risk that you want covered you are generally told, "I'll look up our experience on that and let you know what we can do." He then gets in touch with a central bureau where his own and perhaps other companies pool their information on such risks, and he finds out just how such cases have worked out in the past. With the facts in hand he is then prepared to handle the situation intelligently.

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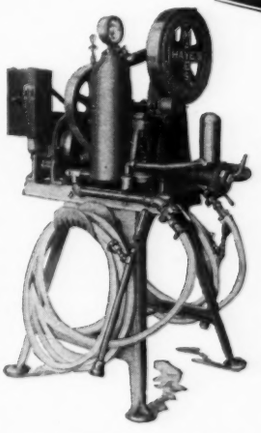

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HAYES PUMP & PLANTER CO.

819 Sixth St.

Dept. 19 Galva, Ill.

"John Crane"

"The Pump Packing the Motor Builders Use"

Only One Style for All Cars

"John Crane" Metallic Packing is standard equipment on over 40% of all cars. Metallic face saves shaft. Resilient core cushions vibration. Keeps pump tight. Saves non-freezing mixtures. Metallic Packing makes a repacking job worth more money. Ask your jobber or order direct.

Compression with the nut makes a one piece metallic packer.

Spool repacks 20 pump packing boxes.

Crane Packing Company

1805 Cuyler Avenue Chicago

109 Broad Street New York

Gentlemen:

Send me C. O. D. ..... Garage size spools of Style 112—$2.50 net. 1/8" size packs all pumps.

Name.....

Address.....

"Write Today!"

It often happens that the automotive merchant who writes today, gets to be first in his territory to sell a product that brings in valuable profits.

At least, in every instance, it gives him an opportunity to decide to the best of his judgment whether or not he wishes to take on a new line.

The matter of staying in business at a profit is just important enough that advantage should be taken of every new possibility. Close investigation often reveals a profit maker.

Write today. Someone else may wire tomorrow.

MOTOR AGE

5 SOUTH WABASH AVENUE
CHICAGO - - - ILLINOIS

MANLEY
High-Draulic Jack $48

CAPACITY 2½ TONS

Minimum Height only.....5¼ Inches Travel of Post.....10 Inches

From dead flat to full clearance off floor with any balloon tire.

Hydraulic principle

Min. height 5¼ In.
Travel.....10 In.

Bridge construction

2½ tons capacity

Safety valve makes it impossible to overload

Easy lift—Maximum load may be obtained with one hand

Quick lowering—merely press foot pedal and Jack lowers—like a barber's chair.

Can be operated under overhang or in close corners, as Jack handle operates with long or short strokes and in any position.

CAN BE SUPPLIED WITH OR WITHOUT RUBBER TIRES

Cat. No. 555 High-Draulic Jack with steel wheels $48.00

Cat. No. 556 High-Draulic Jack with rubber tires $59.00

This is a Manley Year

Your Jobber Can Supply You. For new 1926 Catalog describing the entire Manley line write to

MANLEY MFG. CO., YORK, PA.

1919
WHEN BETTER AUTOMOBILES ARE BUILT
BUICK WILL BUILD THEM

1920
WHEN BETTER AUTOMOBILES ARE BUILT
BUICK WILL BUILD THEM

1921
WHEN BETTER AUTOMOBILES ARE BUILT
BUICK WILL BUILD THEM

1922
WHEN BETTER AUTOMOBILES ARE BUILT
BUICK WILL BUILD THEM

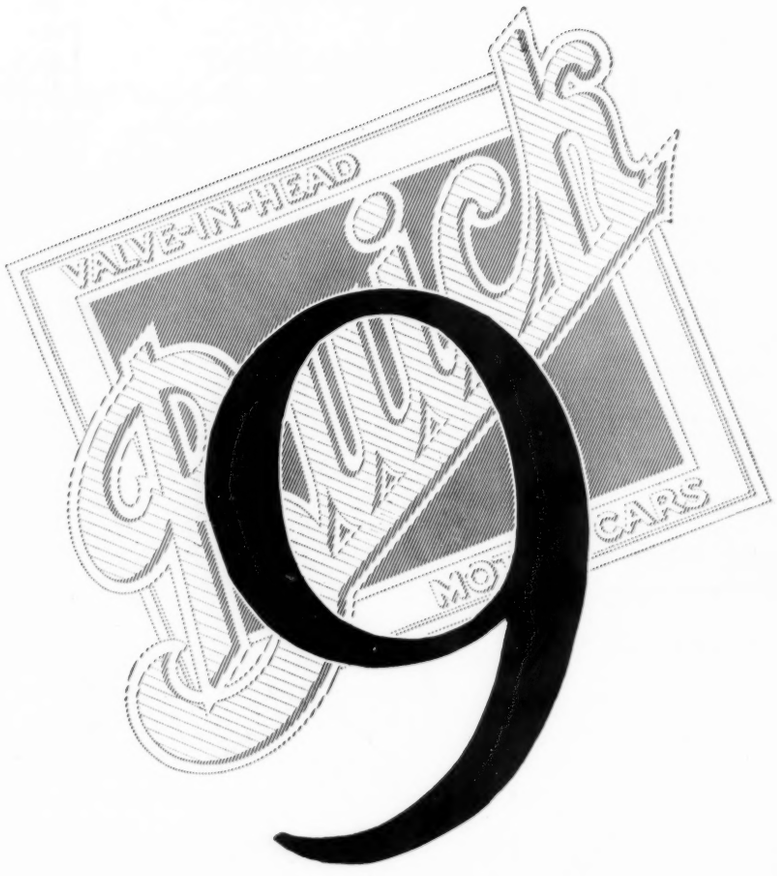
1923
WHEN BETTER AUTOMOBILES ARE BUILT
BUICK WILL BUILD THEM

1924
WHEN BETTER AUTOMOBILES ARE BUILT
BUICK WILL BUILD THEM

1925
WHEN BETTER AUTOMOBILES ARE BUILT
BUICK WILL BUILD THEM

1926
WHEN BETTER AUTOMOBILES ARE BUILT
BUICK WILL BUILD THEM

1927
WHEN BETTER AUTOMOBILES ARE BUILT
BUICK WILL BUILD THEM



consecutive years

first place

The world thinks well of Buick. For the 9th consecutive year Buick holds first place at the National Automobile Shows—an award which goes each year to the sales leader among all the members of the National Automobile Chamber of Commerce.